

JPL D-22421
Version 1.0

Earth Observing System (EOS)
Tropospheric Emission Spectrometer (TES)

TES L2_Retrieval Release Description Document (RDD)

Release 15.0

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March 22, 2019



Jet Propulsion Laboratory
California Institute of Technology
Pasadena, California

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Tropospheric Emission Spectrometer (TES)

**TES L2 Retrieval
Release Description Document (RDD)**

Release 15

Approved by:

Richard Lay
Project Manager, JPL

March 22, 2019

JPL
Jet Propulsion Laboratory
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Revision Log

Document Revision	Date	Description	Author
1.0	February 22, 2008	Release 11.0.0 for PGE and OSP Delivery	R. Sakurai
1.1	July 21, 2008	Release 11.1.0 for PGE and OSP Delivery	R. Sakurai
1.2	February 17, 2009	Release 11.3.0 for PGE and OSP	S. Gluck
	November 10, 2010	Release 12.0 for PGE and OSP	S. Poosti
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2.0	March 22, 2019	Release 15.0 for PGE and OSP	S. Gluck



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1 INTRODUCTION

1.1 IDENTIFICATION

This document describes the software release for L2_Retrieval, one of the two product generation executives (PGE) comprising the Level 2 subsystem of the TES Science Data Processing System (SDPS). The L2_Retrieval PGE is the “working horse” of the Level 2 subsystem which provides the analysis of spectra generated by the Level 1B subsystem.

This document retains the description for Release 11.3.0 and describes the latest developments for Release 11.3.0 for the L2_Retrieval PGE of the Level 2 subsystem. The acceptance criteria for this document can be found in Appendix A.

1.2 OVERVIEW

The main function of Level 2 subsystem is to derive information about the trace gases in the troposphere from analysis of spectra generated by Level 1B subsystem through an iterative process referred as “retrieval”.

The L2_Retrieval PGE accepts Level 1B products based on the processing order defined by Science Investigator-led Processing System (SIPS). L2_Retrieval PGE processes Level 1B products by comparing the observed spectra with data set of known spectra to make inference on the molecular composition of the observed atmosphere. In addition, the L2_Retrieval PGE retrieves information on atmospheric temperature and water content.

1.3 DOCUMENT SCOPE

This document contains the release details for L2_Retrieval PGE of the Level 2 subsystem of the TES Science Data Processing System (SDPS). This document includes the new or changed capabilities of the PGE since Release 15.00.00, test summaries, deficiencies and liens, delivery contents, and build and runtime instructions.

In addition, this document contains the delivery contents of the Level 2 Operational Support Products (OSPs) that is used by the L2_Retrieval PGE for Release 15.00.00.

The primary sources of L2_Retrieval PGE definitions and specifications are *TES L2Retrieval PGE Specification* (JPL D-22371) and *Level-2 Functional Requirements Document* (JPL D-23176).



1.4 METHODS

The TES Science Data Processing Software is designed and implemented using object-oriented concepts and C++ programming language; and includes legacy C and IDL code. The software design and specification for L2_Retrieval PGE is documented through the use of the Unified Modeling Language (UML). The Rational Rose (2002) software tool provides the means for this documentation. The files generated by the Rational Rose software tool for L2_Retrieval PGE are configured in ClearCase (/vobs/Models/L2).

The software for the L2_Retrieval PGE uses a set of common, reusable functions termed as framework. The functions are partially completed applications that may be extended to form the desired piece of software. Framework provides those software application segments that may be reused by several TES subsystems.

1.5 NOTATION AND TERMINOLOGY

CM	Configuration Management
ELANOR	Earth Limb and Nadir Operational Retrieval
FAMS	Final Apodized Measured Spectrum
FM	Forward Model
FOV	Field of View
ILS	Instrument Line Shape
L1A	Level 1A
L1B	Level 1B
L2	Level 2
NESR	Noise Equivalent Spectral Radiance
ODT	One Day Test
OSP	Operational Support Products
PGE	Product Generation Executive
RDD	Release Description Document
SCF	Science Computing Facility
SDPS	Science Data Processing System
SIPS	Science Investigator-led Processing System
TES	Tropospheric Emission Spectrometer
UML	Unified Modeling Language

Notations

< >	user-defined specification
< >: { }	defined for one of the specifications in the list
< >: ()	defined for each one specification in the list



1.6 CONTROLLING DOCUMENTS

1. *Level -2 Functional Requirement Document, JPL D-23176, Version 1.0, April 2004*
2. *TES L2 Retrieval PGE Specification: PGE Definition and Production Rules, Release 15.0, JPL D-22371, Version 1, March 2019*
3. *Level 2 Software Interface Specification (SIS), Release 10.0, JPL D-23001, Version 1.0, November 2010*
4. *Level 2 Operational Support Product Software Interface Specification for TES Software Release 10.0, JPL D-24975, Version 1.0, August 2006*
5. *TES Ground Data System Database Definition Document Release 15.0, JPL D-23034, Version 15, March 2019*

1.7 REFERENCE DOCUMENTS

1. *TES Software Management Plan, JPL D-13214, Version 2.2, April 2002*
2. *Software Implementation Guidelines, JPL D-10622*
3. *TES Science Data Processing System C++ Coding Standards, JPL D-20315, Version 1.2.1, July 2002.*
4. *TES Science Data Processing System Framework Programmer's Guide, JPL D-20207, Version 5.0, January 2004*
5. *TES Science Data Processing Software Error Policy, TES DFM #236-6.1, Version 1.1, April 2002*
6. *TES L2 Stand-Alone ELANOR User's Guide, TES DFM #1466, Version 1.2, September 2004*
7. *ClearCase Cookbook, JPL D-26274, May 2003*



2 PRODUCT IDENTIFICATION

- Release 15.0 of L2 Retrieval PGE was built on Linux CentOS 6.6/64.
 - **Compiler:** GNU C/C++ 4.5 (/pkg/lang/gcc-4.5.2/bin/g++)
 - **Language:** C++ & IDL
 - **Build ID:** L2RE-14.00.00-Delivered
 - **Date:** February 24, 2019
- Release 15.0 of L2 Retrieval OSPs can be installed on Pentium 4 and Athlon machines.
 - **ID:** L2RE-15.00.00 -Delivered
 - **Date:** February 24, 2019

2.1 SUPPORT SOFTWARE

Oracle version 10g	/pkg/ora10g/1020client
SDP TOOLKIT version 5.2.18	/pkg/pgs/SDPTK5.2.18
HDF 5 version 1.8.7	/pkg/pgs/SDPTK5.2.18/hdf5
HDFEOS 5 version 1.14	/pkg/pgs/SDPTK5.2.18/hdfEOS5
HDF version 4.2.6	/pkg/pgs/SDPTK5.2.18/hdf
HDFEOS version 2.18	/pkg/pgs/SDPTK5.2.18/hdfEOS
IDL version 8.0	/pkg/rsi/idl80
Roguewave SourcePro 8	/pkg/roguewave/rw_bs8-64
LAPACK	/pkg/local/lapack-64
FFTW	/pkg/local/fftw3.3
QRD	/pkg/local/rrqr_acm-64
Framework Libraries	/vobs/Framework (FWXX-14.00.00-Delivered)
Shared Libraries	/vobs/Shared (ShFW-14.00.00-Delivered)
ClearCase version 9.0.0	/opt/ibm/RationalSDLC/... Linux, Solaris, and Windows
ClearQuestClient version 9.0.0	/opt/ibm/RationalSDLC/... Linux, Solaris, and Windows
Rational Rose (PC) 7.0.0.0	Windows only



3 NEW OR CHANGED CAPABILITIES

The following are the new and changed capabilities implemented in L2 Retrieval PGE and OSPs for Release 15.0:

- Added the capability to retrieve Hydrogen Cyanide and added required OSPs for its retrieval.
- Updated quality flag generation for PAN standard products.
- Updated L2 OSPs for O3, CH4, and N2O. CH4 and N2O OSPs are updated to yearly data
- ABSCO tables version v3.0 should be used for processing with this release

3.1 CLEARQUEST TRACKING

New and changed capabilities of L2 Retrieval PGE are reflected in the software development tracked in ClearQuest (CQ) and configured in ClearCase. The following tables provide details of the ClearQuest items and associated ClearCase branches.

3.1.1 L2 Retrieval PGE

The following table details the ClearQuest items for L2_Retrieval and ELANOR in Release 15.0.

CQ ID	ClearCase Branch Name (ClearCase Label)	Description
CR5067	irina_CR5067_5069_HCN_LInearMapImp_R15	Update L2 Retrieval PGEs for Hydrogen Cyanide
CR5069	irina_CR5067_5069_HCN_LInearMapImp_R15	Update the L2 Strategy table for Hydrogen Cyanide
CR5074	pasha_CQ5074_PAN_Quality_FlagUpdate	Retrieval Strategy update fro linear TES PAN Retrievals

3.1.2 L2 Retrieval OSP

The following table details the ClearQuest items for L2_Retrieval operational support product files in Release 15.0.

CQ ID	ClearCase Branch Name (ClearCase Label)	Description
		ClearCase Directory



CR5068	irina_CR5068_HCN_OSPs_R15	Update Quality Flag OSP for Hydrogen Cyanide (HCN)
CR5076	irina_CR5076_CH4_CO2_climatology	Add CHr & CO2 Climatology for R15

3.2 PROBLEMS RESOLVED FROM AN EARLIER RELEASE

CQ Item	Description



4 TEST SUMMARY

Primary integration tests for L2_Retrieval PGE software were executed through the following scripts in */vobs/L2_Retrieval/test*:

- Nadir_RetrievalMode_2147_171_2.csh
- Nadir_RetrievalMode_2147_26_2.csh
- Nadir_RetrievalMode_2147_171_2_FullFilter.csh
- Limb_RetrievalMode_2147_208_4.csh
- Limb_RetrievalMode_2147_208_5.csh
- Nadir_RetrievalMode_2147_241_2_Sahara.csh
- Nadir_RetrievalMode_2147_32_2_Pole.csh
- Nadir_RetrievalMode_2147_3_2_IceEmissivity
- Nadir_RetrievalMode_2147_241_2_Sahara
- RetrievalMode_4825_46_4_Nadir_SondeData.csh
- Nadir_RetrievalMode_9622_1_162.csh
- RetrievalMode_5563.1.09_Nadir_SpecialOBS.csh

Testing of ELANOR was completed over a test case in the regression suite (*/vobs/L2_Retrieval/ELANOR/test/linux_regression*).

4.1 UNIT TEST REPORTS

Release	Unit Test Report Files
13.0	<i>/vobs/L2_Retrieval/ELANOR/delivery/ELANOR/ApodCoefficients*</i>
8.0	<i>/vobs/L2_Retrieval/Detector_Table/artifacts</i> <i>UnitTest_ScreenOutput</i>
8.0	<i>/vobs/L2_Retrieval/Detector_Table/DetectorData/artifacts</i> <i>UnitTest_ScreenOutput</i>
9.0	<i>/vobs/L2_Retrieval/ELANOR/artifacts</i> <i>ELANOR_UnitTest_Valgrind_report.txt</i>
8.0	<i>/vobs/L2_Retrieval/Step_Strategy/APriori/artifacts</i> <i>APriori_UTReport.txt</i>
8.0	<i>/vobs/L2_Retrieval/Step_Strategy/ErrorAnalysis/artifacts</i> <i>ErrorAnalysis_UTReport.txt</i> <i>UnitTestPlan_ErrorAnalysis.doc</i>
8.0	<i>/vobs/L2_Retrieval/Step_Strategy/Microwindows/artifacts</i> <i>Microwindows_UTReport.txt</i>
8.0	<i>/vobs/L2_Retrieval/Step_Strategy/StepState/artifacts</i> <i>StepState_UTReport.txt</i>
8.0	<i>/vobs/L2_Retrieval/Strategy_Table/artifacts</i> <i>Strategy_Table_UTReport.txt</i> <i>UnitTestPlan_StrategyTablesData.doc</i>
8.0	<i>/vobs/L2_Retrieval/Target_Scene_Attributes/artifacts</i> <i>UnitTestReport_BT.txt</i>
7.0	<i>/vobs/L2_Retrieval/Target_Step_Data/artifacts</i> <i>L2_C_TargetLevelData_UTReport.txt</i>
8.0	<i>/vobs/L2_Retrieval/Target_Strategy/APrioriCovariance/artifacts</i> <i>APrioriCovariance_UTReport.txt</i>

	UnitTestPlan_APrioriCovariance.doc
8.0	/vobs/L2_Retrieval/Target_Strategy/Brightness_Temperature/artifacts BT_UTReport.txt UnitTestPlanL2BTSupplier.doc
8.0	/vobs/L2_Retrieval/Target_Strategy/FAMS/artifacts FAMS_UTReport.txt UnitTestPlanL2FAMSSupplier.doc
8.0	/vobs/L2_Retrieval/Target_Strategy/FM_Pressure/artifacts FM_Pressure_UTReport.txt
8.0	/vobs/L2_Retrieval/Target_Strategy/GmaoMet_Reader/artifacts GmaoMet_Reader_UTReport.txt
8.0	/vobs/L2_Retrieval/Target_Strategy/MapSupplier/artifacts MapSupplier_UTReport.txt
8.0	/vobs/L2_Retrieval/Target_Strategy/MicroWindows_Definition/artifacts MicroWindows_Definition_UTReport.txt MicroWindowUnitTestPlan.doc
8.0	/vobs/L2_Retrieval/Target_Strategy/SpectralSpecies/artifacts SpectralSpecies_UTReport.txt
8.0	/vobs/L2_Retrieval/Target_Strategy/State/artifacts State_UTReport.txt
8.0	/vobs/L2_Retrieval/Target_Strategy/Surface_Data/artifacts Surface_Data_UTReport.txt
8.0	/vobs/L2_Retrieval/Target_Strategy/Surface_Emissivity/artifacts Emissivity_UTReport.txt L2_C_ElanorFileObject_driver.out L2_C_EmisMap_Data_driver.out L2_C_Emissivity_Data_driver.out L2_C_Emissivity_Supplier_driver.out L2_C_LandCoverMap_driver.out L2_C_LandCoverNFileObject_driver.out L2_C_MasudaOceanFileObject_driver.out L2_C_StepEmisMap_Data_driver.out L2_C_Surface_Ocean_Masuda_driver.out L2_C_Surface_USGS_Goode_driver.out UnitTestResults.asc UnitTestPlanL2EmisSupplier.doc

4.2 SOFTWARE TEST TOOL REPORTS

4.2.1 Valgrind Reports

Release	Valgrind Report Files
10.0	/vobs/L2_Retrieval/artifacts L2_Retrieval_Run2147_Seq171_Scan2.Valgrind L2_Retrieval_Run2147_Seq208_Scan4_StrategyOnly.Valgrind L2_Retrieval_Run2147_Seq208_Scan4.Valgrind
8.0	/vobs/L2_Retrieval/Detector_Table/artifacts L2_C_DetectorTable_driver.VGlog (leaks and errors reported)
8.0	/vobs/L2_Retrieval/Detector_Table/DetectorData/artifacts L2_C_DetectorTableDAO_driver.VGlog (leaks and errors reported)
9.0	/vobs/L2_Retrieval/ELANOR/artifacts ELANOR_UnitTest_Valgrind_report.txt (errors reported)

	/vobs/L2_Retrieval/ELANOR_Output/artifacts (valgrind not executed)
7.0	/vobs/L2_Retrieval/Step_Strategy/APriori/artifacts L2_C_APrioriAtmSpeciesVector.valgrind L2_C_APrioriDerivativeConstraintMatrix.valgrind L2_C_APrioriEmissivityMatrix.valgrind L2_C_APrioriEmissivityVector.valgrind L2_C_APrioriGeneralConstraintMatrix.valgrind L2_C_APrioriNonAtmMatrix.valgrind L2_C_APrioriNonAtmVector.valgrind L2_C_APrioriPremadeConstraintMatrix.valgrind L2_C_APriori_Data.valgrind L2_C_APriori_Supplier.valgrind L2_U_MathUtil.valgrind
7.0	/vobs/L2_Retrieval/Step_Strategy/ErrorAnalysis/artifacts L2_C_ErrorAnalysis_AtmspeciesOutput.valgrind L2_C_ErrorAnalysis_Input.valgrind L2_C_ErrorAnalysis_IntermediateData.valgrind L2_C_ErrorAnalysis_Output.valgrind
7.0	/vobs/L2_Retrieval/Step_Strategy/Microwindows/artifacts L2_C_Microwindows_Data.valgrind L2_C_Microwindows_Supplier.valgrind
7.0	/vobs/L2_Retrieval/Step_Strategy/StepState/artifacts L2_C_StepLevelAtmProfiles_Supplier.valgrind
7.0	/vobs/L2_Retrieval/Strategy_Table/artifacts L2_CAllMapsInformation.pid22056 L2_CApodizationInfo.pid22060 L2_CAprioriInfo.pid22065 L2_CElementMapInfo.pid22067 L2_CFilterInfo.pid22069 L2_CFmSimulationInfo.pid22073 L2_CLevenbergMarqParms.pid22075 L2_CStateInformation.pid22077 L2_CStepControlParameters.pid22079 L2_CStepInformation.pid22082 L2_CStrategyTableData.pid22084 L2_CVectorSourceInfo.pid22093 L2_CVectorsInfo.pid22091
7.0	/vobs/L2_Retrieval/Strategy_Table/DataAccess/artifacts L2_CAllMapsInformationDAO.pid22152 L2_C_ApodizationInfoDAO.pid22154 L2_CAprioriInfoDAO.pid22156 L2_CElementMapInfoDAO.pid22207 L2_CFilterInfoDAO.pid23853 L2_CFmSimulationInfoDAO.pid23856 L2_CLevenbergMarqparmsDAO.pid23988 L2_CStateInformationDAO.pid24006 L2_CStepControlParametersDAO.pid24008 L2_CStepInformationDAO.pid24010 L2_CStrategyTableDataDAO.pid24059 L2_CVectorSourceInfoDAO.pid25015 L2_CVectorsInfoDAO.pid25020
5.0	/vobs/L2_Retrieval/Target_Scene_Attributes/artifacts TargetSceneAttributes.LimbScan.ValgrindReport TargetSceneAttributes.NadirScan.ValgrindReport

7.0	/vobs/L2_Retrieval/Target_StepData/artifacts L2_C_TargetLevelData.valgrind
7.0	/vobs/L2_Retrieval/Target_Strategy/APrioriCovariance/artifacts L2_C_APrioriAtmCovarianceMatrix.valgrind L2_C_APrioriCovariance_Data.valgrind L2_C_APrioriCovariance_Supplier.valgrind L2_C_APrioriNonAtmCovarianceMatrix.valgrind
7.0	/vobs/L2_Retrieval/Target_Strategy/Brightness_Temperature/artifacts L2_C_BTAttributes_Data.valgrind L2_C_BTAttributes_Supplier.valgrind L2_C_BTStep.valgrind
8.0	/vobs/L2_Retrieval/Target_Strategy/FAMS/artifacts L2_C_FAMS_Data.valgrind L2_C_FAMS_Supplier.valgrind L2_C_FilterNFileObject.valgrind L2_C_NesrNFileObject.valgrind L2_C_NoiseNFileObject.valgrind L2_C_RadianceNFileObject.valgrind L2_C_SimSpectrumSupplier.valgrind (leaks and error reported)
7.0	/vobs/L2_Retrieval/Target_Strategy/FM_Pressure/artifacts L2_C_FMPressures_Data.valgrind L2_C_FMPressures_Supplier.valgrind L2_C_SurfacePressure_Supplier.valgrind
7.0	/vobs/L2_Retrieval/Target_Strategy/GmaoMet_Reader/artifacts L2_C_GmaoMet_Reader.valgrind
7.0	/vobs/L2_Retrieval/Target_Strategy/MapSupplier/artifacts L2_C_Maps_Data.valgrind L2_C_Maps_Supplier.valgrind L2_C_RetrievalLevels.valgrind L2_C_StepLevelMaps_Data.valgrind
7.0	/vobs/L2_Retrieval/Target_Strategy/MicroWindows_Definition/artifacts L2_C_MWDefinition_Data.valgrind L2_C_MWDefinition_Supplier.valgrind L2_C_OneMWDefinition_Data.valgrind L2_C_StepLevelMWDefinition_Data.valgrind
7.0	/vobs/L2_Retrieval/Target_Strategy/SpectralSpecies/artifacts L2_C_Calibration_Data.valgrind L2_C_Cloud_Data.valgrind L2_C_Cloud_IGR_Params.valgrind L2_C_StepSpectralSpeciesMap.valgrind
7.0	/vobs/L2_Retrieval/Target_Strategy/State/artifacts L2_C_AtmProfiles_Data.valgrind L2_C_AtmProfiles_Supplier.valgrind L2_C_Profile.valgrind L2_C_Species.valgrind L2_C_SpeciesList.valgrind L2_C_SpeciesUnits.valgrind
7.0	/vobs/L2_Retrieval/Target_Strategy/Surface_Data/artifacts L2_C_SurfaceData_Supplier.valgrind L2_C_Surface_Data.valgrind
7.0	/vobs/L2_Retrieval/Target_Strategy/Surface_Emissivity/artifacts L2_C_ElanorFileObject.valgrind L2_C_Emissivity_Data.valgrind L2_C_Emissivity_Supplier.valgrind

	L2_C_EmisMap_Data.valgrind L2_C_LandCoverMap.valgrind L2_C_LandCoverNFileObject.valgrind L2_C_MasudaOceanFileObject.valgrind L2_C_StepEmisMap_Data.valgrind L2_C_Surface_Ocean_Masuda.valgrind L2_C_Surface_USGS_Goode.valgrind
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5 DEFICIENCIES AND LIENS

CQ Item	Description



6 DETAILED DELIVERY CONTENTS

6.1 CLEARCASE CONFIGURATION SPECIFICATION (CONFIG SPEC)

The following is how the configuration specification file should be set in order to view and access the directories and files needed for L2_Retrieval PGE in ClearCase for Release 15.0.

```

element * CHECKEDOUT

#Framework and Shared
element /vobs/Framework/... FWXX-14.00.00-Delivered
element /vobs/Shared/... ShFW-14.00.00-Delivered

#Documents
element /vobs/doc/... /main/LATEST

#L1B
element /vobs/L1B/... L1BX-14.01.00-Delivered

#L2_Retrieval
element /vobs/L2_Retrieval/... L2RE-15.00.00-Delivered

element /vobs/Support/... L2RE-15.00.00-Delivered

element * /main/LATEST
    
```

6.2 CODE

The code listed below resides in ClearCase for Release 15.0.0 L2 Retrieval (Main)

/vobs/L2_Retrieval	
L2_C_ProductOutput.cpp/h	build_L2_Retrieval
L2_C_RetrievalManager.cpp/h	
L2_C_Retrieval_AI.cpp/h	<i>Unit Test Code</i>
L2_C_Retrieval_Algor.cpp/h	retrievalInputInit_SimulationStep.cpp
L2_C_Retrieval_Main.cpp	targetLevelObjects.cpp
	Makefile.local.in.targetLevelObjects

Makefile.local.in	
-------------------	--

6.2.1 Analysis (IDL)

/vobs/L2_Retrieval/Analysis/IDL	
TOOLS.tar	src.tar

* Error Analysis IDL source code is tarred

6.2.2 Common

/vobs/L2_Retrieval/Common	
L2_A_NFileObject.cpp/h	L2_U_Interpolation.cpp/h
L2_C_FFTW_Interface.cpp/h	L2_U_MathUtils.cpp/h
L2_C_Profile.cpp/h	L2_U_NUDFT.cpp/h
L2_C_Species.cpp/h	
L2_C_SpeciesList.cpp/h	Makefile.local.in
L2_C_SpeciesUnits.cpp/h	
L2_C_RatioProfile.cpp/h	<i>Unit Test Code</i>
L2_S_RetrievalLog.cpp/h	L2_U_NUDFT_driver.cpp
L2_S_TargetSceneParameters.cpp/h	L2_U_NUFDT_sequencer.cpp
L2_U_EarthConstants.cpp/h	L2_U_NUFDT_tests.cpp

6.2.3 Detector_Table

/vobs/L2_Retrieval/Detector_Table	
L2_C_DetectorTable.cpp/h	<i>Unit Test Code</i>
	Detector_Table_main.cpp
Makefile.local.in	L2_C_DetectorTable_driver.cpp
	L2_C_DetectorTable_sequencer.cpp
	L2_C_DetectorTable_tests.cpp

6.2.3.1 DetectorData (Detector_Table)

/vobs/L2_Retrieval/Detector_Table/DetectorData	
L2_C_DetectorTableDAO.cpp/h	<i>Unit Test Code</i>
	L2_C_DetectorTableDAO_driver.cpp
Makefile.local.in	L2_C_DetectorTableDAO_sequencer.cpp
	L2_C_DetectorTableDAO_tests.cpp

6.2.4 ELANOR

/vobs/L2_Retrieval/ELANOR	
L2_A_ELANOR.cpp/h	readInputValue.cpp/h
L2_C_Radiance.cpp/h	userInputParams.cpp/h
L2_C_RadianceAndJacobian.cpp/h	
L2_C_RayTrace.cpp/h	Makefile.local.in



L2_C_Retrieval.cpp/h	
L2_S_TauFunction.cpp/h	ELANOR_main.cpp

6.2.4.1 ELANOR_Utils (ELANOR)

/vobs/L2_Retrieval/ELANOR/ELANOR_Utils	
L2_C_Timer.cpp/h	Makefile.local.in
L2_U_MapUtils.cpp/h	
L2_U_Utils.cpp/h	

6.2.4.2 Forward_Model (ELANOR)

/vobs/L2_Retrieval/ELANOR/Forward_Model	
L2_C_CloudExtinction.cpp/h	Makefile.local.in
L2_C_ForwardModel.cpp/h	
L2_C_RayBundle.cpp/h	

6.2.4.2.1 FOV_Convolution (ELANOR/Forward_Model)

/vobs/L2_Retrieval/ELANOR/Forward_Model/FOV_Convolution	
L2_C_FOV.cpp/h	<i>Unit Test Code</i>
	L2_C_FOV_driver.cpp
	L2_C_FOV_sequencer.cpp
Makefile.local.in	L2_C_FOV_Tests.cpp

6.2.4.2.2 ILS_Convolution (ELANOR/Forward_Model)

/vobs/L2_Retrieval/ELANOR/Forward_Model/ILS_Convolution	
L2_C_ILS.cpp/h	<i>Unit Test Code</i>
L2_C_Poly.cpp/h	L2_C_ILS_driver.cpp
	L2_C_ILS_sequencer.cpp
Makefile.local.in	L2_C_ILS_tests.cpp

6.2.4.2.3 OD_Supplier (ELANOR/Forward_Model)

/vobs/L2_Retrieval/ELANOR/Forward_Model/OD_Supplier	
L2_C_CloudODSupplier.cpp/h	Makefile.local.in
L2_C_ContinuumODSupplier.cpp/h	
L2_C_FrequencyGrid.cpp/h	<i>Unit Test Code</i>
L2_C_ODSupplier.cpp/h	L2_C_ODSupplier_driver.cpp
L2_C_TemperatureGrid.cpp/h	L2_C_ODSupplier_sequencer.cpp
L2_C_XsectODSupplier.cpp/h	L2_C_ODSupplier_tests.cpp
XsectRecord.cpp/h	

6.2.4.2.4 Radiance_Jacobian (ELANOR/Forward_Model)



/vobs/L2_Retrieval/ELANOR/Forward_Model/Radiance_Jacobian	
L2_C_RadAndJacNumericalIntegration.cpp/h	L2_C_RadAndJacNumericalIntegration_sequencer.cpp
L2_C_RayRadianceAndJacobian.cpp/h	L2_C_RadAndJacNumericalIntegration_tests.cpp
	L2_C_RayRadianceAndJacobian_driver.cpp
Makefile.local.in	L2_C_RayRadianceAndJacobian_sequencer.cpp
	L2_C_RayRadianceAndJacobian_tests.cpp
Unit Test Code	L2_C_RaytestDummy.cpp
L2_C_ODSsupplier_testDummy.cpp	L2_C_SurfaceData_Params_testDummy.cpp
L2_C_RadAndJacNumericalIntegration_driver.cpp	

6.2.4.2.5 Ray_Trace (ELANOR/Forward_Model)

/vobs/L2_Retrieval/ELANOR/Forward_Model/Ray_Trace	
L2_A_Ray.cpp/h	L2_C_Atmosphere_driver.cpp
L2_C_Atmosphere.cpp/h	L2_C_Atmosphere_sequencer.cpp
L2_C_DetectorRay.cpp/h	L2_C_Atmosphere_tests.cpp
L2_C_Earth.cpp/h	L2_C_Earth_driver.cpp
L2_C_Layer.cpp/h	L2_C_Earth_sequencer.cpp
L2_C_Level.cpp/h	L2_C_Earth_tests.cpp
L2_C_LimbRay.cpp/h	L2_C_Layer_driver.cpp
L2_C_NadirRay.cpp/h	L2_C_Layer_sequencer.cpp
L2_U_AtmosphereConstants.cpp/h	L2_C_Layer_tests.cpp
L2_U_Constants.cpp	L2_C_Level_driver.cpp
L2_U_Interpolate.cpp/h	L2_C_Level_sequencer.cpp
L2_U_RayTracingConstants.cpp/h	L2_C_Level_tests.cpp
	L2_C_LimbRay_driver.cpp
Makefile.local.in	L2_C_LimbRay_sequencer.cpp
	L2_C_LimbRay_tests.cpp
Unit Test Code	L2_C_NadirRay_driver.cpp
L2_A_Ray_driver.cpp	L2_C_NadirRay_sequencer.cpp
L2_A_Ray_sequencer.cpp	L2_C_NadirRay_tests.cpp
L2_A_Ray_tests.cpp	

6.2.4.3 NLLS_Solver (ELANOR)

/vobs/L2_Retrieval/ELANOR/NLLS_Solver	
L2_A_NLLS_DiagVals.cpp/h	L2_C_GN_Solver_sequencer.cpp
L2_A_NLLS_ResAndJac.h	L2_C_GN_Solver_tests.cpp
L2_A_NLLS_Solver.cpp/h	L2_C_LM_Solver_driver.cpp
L2_A_QR_Decomp.cpp/h	L2_C_LM_Solver_sequencer.cpp
L2_A_RetrievalVector.h	L2_C_LM_Solver_tests.cpp
L2_A_StopCriteriaCheck.h	L2_C_LM_State_driver.cpp
L2_C_GN_DiagVals.cpp/h	L2_C_LM_State_sequencer.cpp
L2_C_GN_Solver.cpp/h	L2_C_LM_State_tests.cpp



L2_C_LM_DiagVals.cpp/h	L2_C_NLLS_State_driver.cpp
L2_C_LM_Solver.cpp/h	L2_C_NLLS_State_sequencer.cpp
L2_C_LM_State.cpp/h	L2_C_NLLS_State_tests.cpp
L2_C_NLLS_State.cpp/h	L2_C_QR-Decomp_QPX_driver.cpp
L2_C_QR-Decomp_QPX.cpp/h	L2_C_QR-Decomp_QPX_sequencer.cpp
L2_C_SimpleStopCriteriaCheck.cpp/h	L2_C_QR-Decomp_QPX_tests.cpp
L2_C_StopCriteriaAndConvergenceCheck.cpp/h	L2_C_SimpleStopCriteriaCheck_driver.cpp
L2_U_SolverMathFuncs.cpp/h	L2_C_SimpleStop_CriteriaCheck_sequencer.cpp
	L2_C_SimpleStop_CriteriaCheck_tests.cpp
Makefile.local.in	L2_C_StopCriteriaAndConvergenceCheck_driver.cpp
	L2_C_StopCriteriaAndConvergenceCheck_sequencer.cpp
<i>Unit Test Code</i>	L2_C_StopCriteriaAndConvergenceCheck_tests.cpp
L2_C_GN_Solver_driver.cpp	

6.2.4.3.1 Unit_Test_Classes (ELANOR/NLLS_Solver)

/vobs/L2 Retrieval/ELANOR/NLLS Solver/Unit Test Classes	
L2_A_Test_ResAndJac.cpp/h	L2_C_SimpleRetrievalVector.cpp/h
L2_C_PredData_ResAndJac.cpp/h	
L2_C_SarkEx1_ResAndJac.cpp/h	Makefile.local.in
L2_C_SarkEx2_ResAndJac.cpp/h	

6.2.4.4 Problem_Spec (ELANOR)

/vobs/L2 Retrieval/ELANOR/Problem_Spec	
L2_A_ELANOR_ResAndJac.cpp/h	<i>Unit Test Code</i>
L2_C_MAP_ResAndJac.cpp/h	L2_C_MAP_ResAndJac_driver.cpp
L2_C_ML_ResAndJac.cpp/h	L2_C_MAP_ResAndJac_sequencer.cpp
L2_C_RetrievalParam.cpp/h	L2_C_MAP_ResAndJac_tests.cpp
L2_C_RetrievalVectorDiag.cpp/h	L2_C_ML_ResAndJac_driver.cpp
	L2_C_ML_ResAndJac_sequencer.cpp
	L2_C_ML_ResAndJac_tests.cpp
Makefile.local.in	L2_C_RetrievalVectorDiag_driver.cpp
	L2_C_RetrievalVectorDiag_sequencer.cpp
	L2_C_RetrievalVectorDiag_tests.cpp

6.2.4.5 Unit_Test_Shared (ELANOR)

/vobs/L2 Retrieval/ELANOR/Unit_Test_Shared	
L2_C_DataTester.cpp/h	L2_U_UnitTestUtils.h
L2_C_ELANOR_setup.cpp/h	
L2_U_CombMWDataPopulator.cpp/h	Makefile.local.in
L2_U_GenericDataPopulator.cpp/h	



6.2.5 ELANOR_Input

/vobs/L2_Retrieval/ELANOR_Input	
L2_A_SpectralSpecies_Data.cpp/h	L2_C_RetrievalInput.cpp/h
L2_C_APriori_Data.cpp/h	L2_C_StepLevelFSV.cpp/h
L2_C_AtmProfiles_Data.cpp/h	L2_C_StepLevelMWDefinition_Data.cpp/h
L2_C_Calibration_Data.cpp/h	L2_C_StepLevelMaps_Data.cpp/h
L2_C_Cloud_Data.cpp/h	L2_C_StepSpectralSpeciesMap.cpp/h
L2_C_ElanorFileObject.cpp/h	L2_C_Surface_Data.cpp/h
L2_C_Emissivity_Data.cpp/h	
L2_C_IGR_Params.cpp/h	Makefile.local.in
L2_C_Microwindows_Data.cpp/h	
L2_C_OneMWDefinition_Data.cpp/h	<i>Unit Test Code</i>
L2_C_RayTable_Data.cpp/h	retrievalInputInit.cpp

6.2.6 ELANOR_Output

/vobs/L2_Retrieval/ELANOR_Output	
L2_C_Calibration_Params.cpp/h	L2_C_CombMWConvJacobian_driver.cpp
L2_C_CloudData_Params.cpp/h	L2_C_CombMWConvJacobian_sequencer.cpp
L2_C_CombMWConvJacobian.cpp/h	L2_C_CombMWConvJacobian_tests.cpp
L2_C_CombMWConvRadiance.cpp/h	L2_C_CombMWConvRadiance_driver.cpp
L2_C_ConvJacobian.cpp/h	L2_C_CombMWConvRadiance_sequencer.cpp
L2_C_ConvRadiance.cpp/h	L2_C_CombMWConvRadiance_tests.cpp
L2_C_RetrievalOutput.cpp/h	L2_C_ConvJacobian_driver.cpp
L2_C_SurfaceData_Params.cpp/h	L2_C_ConvJacobian_sequencer.cpp
	L2_C_ConvJacobian_tests.cpp
Makefile.local.in	L2_C_ConvRadiance_driver.cpp
	L2_C_ConvRadiance_sequencer.cpp
<i>Unit Test Code</i>	L2_C_ConvRadiance_tests.cpp

6.2.7 Step_Strategy

/vobs/L2_Retrieval/Step_Strategy	
L2_A_RetrievalStep.cpp/h	Makefile.local.in
L2_C_BTStep.cpp/h	
L2_C_ErrorAnalysisStep.cpp/h	
L2_C_RetrievalStep.cpp/h	<i>Unit Test Code</i>
L2_C_SpectrumSimulationStep.cpp/h	L2_C_ErrorAnalysisStep_driver.cpp
L2_C_StepStrategy.cpp/h	L2_C_ErrorAnalysisStep_sequencer.cpp
L2_C_TargetRetrieval.cpp/h	L2_C_ErrorAnalysisStep_tests.cpp
L2_S_QualityFlags.cpp/h	
L2_C_IRK_Data.cpp/h	



L2_C_IRK_Supplier.cpp/h	
L2_C_TesMlsInterimData.cpp/h	

6.2.7.1 APriori (Step_Strategy)

/vobs/L2_Retrieval/Step_Strategy/APriori	
L2_A_APrioriConstraint.cpp/h	L2_C_APrioriPremadeConstraintMatrix_driver.cpp
L2_C_APrioriAtmSpeciesVector.cpp/h	L2_C_APrioriPremadeConstraintMatrix_sequencer.cpp
L2_C_APrioriConstraintMatrix.cpp/h	L2_C_APrioriPremadeConstraintMatrix_tests.cpp
L2_C_APrioriDerivativeConstraintMatrix.cpp/h	L2_C_APrioriSingleParamSpeciesMatrix_driver.cpp
L2_C_APrioriSpectralSpeciesMatrix.cpp/h	L2_C_APrioriSingleParamSpeciesMatrix_sequencer.cpp
L2_C_APrioriSpectralSpeciesVector.cpp/h	L2_C_APrioriSingleParamSpeciesMatrix_tests.cpp
L2_C_APrioriSingleParamSpeciesMatrix.cpp/h	L2_C_APrioriSingleParamSpeciesVector_driver.cpp
L2_C_APrioriSingleParamSpeciesVector.cpp/h	L2_C_APrioriSingleParamSpeciesVector_sequencer.cpp
L2_C_APrioriPremadeConstraintMatrix.cpp/h	L2_C_APrioriSingleParamSpeciesVector_tests.cpp
L2_C_APriori_Supplier.cpp/h	L2_C_APrioriSpectralSpeciesMatrix_driver.cpp
	L2_C_APrioriSpectralSpeciesMatrix_sequencer.cpp
Makefile.local.in	L2_C_APrioriSpectralSpeciesMatrix_tests.cpp
	L2_C_APrioriSpectralSpeciesVector_driver.cpp
Unit Test Code	L2_C_APrioriSpectralSpeciesVector_sequencer.cpp
L2_A_APrioriSupplier_driver.cpp	L2_C_APrioriSpectralSpeciesVector_tests.cpp
L2_C_APrioriAtmSpeciesVector_driver.cpp	L2_C_APriori_Data_driver.cpp
L2_C_APrioriAtmSpeciesVector_sequencer.cpp	L2_C_APriori_Data_sequencer.cpp
L2_C_APrioriAtmSpeciesVector_tests.cpp	L2_C_APriori_Data_tests.cpp
L2_C_APrioriConstraintMatrix_driver.cpp	L2_C_APriori_Supplier_driver.cpp
L2_C_APrioriConstraintMatrix_sequencer.cpp	L2_C_APriori_Supplier_sequencer.cpp
L2_C_APrioriConstraintMatrix_tests.cpp	L2_C_APriori_Supplier_tests.cpp
L2_C_APrioriDerivativeConstraintMatrix_driver.cpp	L2_U_MathUtils_driver.cpp
L2_C_APrioriDerivativeConstraintMatrix_sequencer.cpp	L2_U_MathUtils_sequencer.cpp
L2_C_APrioriDerivativeConstraintMatrix_tests.cpp	L2_U_MathUtils_tests.cpp

6.2.7.2 ErrorAnalysis (Step_Strategy)

/vobs/L2_Retrieval/Step_Strategy/ErrorAnalysis	
L2_C_ErrorAnalysis_AtSpeciesOutput.cpp/h	L2_C_ErrorAnalysis_Input_driver.cpp
L2_C_ErrorAnalysis_Input.cpp/h	L2_C_ErrorAnalysis_Input_sequencer.cpp
L2_C_ErrorAnalysis_IntermediateData.cpp/h	L2_C_ErrorAnalysis_Input_tests.cpp
L2_C_ErrorAnalysis_Output.cpp/h	L2_C_ErrorAnalysis_IntermediateData_driver.cpp
	L2_C_ErrorAnalysis_IntermediateData_sequencer.cpp
Makefile.local.in	L2_C_ErrorAnalysis_IntermediateData_tests.cpp
	L2_C_ErrorAnalysis_Output_driver.cpp



<i>Unit Test Code</i>	L2_C_ErrorAnalysis_Output_sequencer.cpp
L2_C_ErrorAnalysis_AtmSpeciesOutput_driver.cpp	L2_C_ErrorAnalysis_Output_tests.cpp
L2_C_ErrorAnalysis_AtmSpeciesOutput_sequencer.cpp	L2_C_ErrorAnalysis_Main.cpp
L2_C_ErrorAnalysis_AtmSpeciesOutput_tests.cpp	

6.2.7.3 Microwindows (Step_Strategy)

/vobs/L2_Retrieval/Step_Strategy/Microwindows	
L2_C_Microwindows_Supplier.cpp/h	L2_C_Microwindows_Data_sequencer.cpp
	L2_C_Microwindows_Data_tests.cpp
Makefile.local.in	L2_C_Microwindows_Supplier_driver.cpp
	L2_C_Microwindows_Supplier_sequencer.cpp
<i>Unit Test Code</i>	L2_C_Microwindows_Supplier_tests.cpp
L2_C_Microwindows_Data_driver.cpp	

6.2.7.4 StepState (Step_Strategy)

/vobs/L2_Retrieval/Step_Strategy/StepState	
L2_C_StepLevelAtmProfiles_Supplier.cpp/h	<i>Unit Test Code</i>
	L2_C_StepLevelAtmProfiles_Supplier_driver.cpp
Makefile.local.in	L2_C_StepLevelAtmProfiles_Supplier_sequencer.cpp
	L2_C_StepLevelAtmProfiles_Supplier_tests.cpp

6.2.8 Strategy_Table

/vobs/L2_Retrieval/Strategy_Table	
L2_CAllMapsInformation.cpp/h	L2_CElementMapInfo_sequencer.cpp
L2_CApodizationInfo.cpp/h	L2_CElementMapInfo_tests.cpp
L2_CAprioriInfo.cpp/h	L2_CFilterInfo_driver.cpp
L2_CCorrelatedElementInfo.cpp/h	L2_CFilterInfo_sequencer.cpp
L2_CElementMapInfo.cpp/h	L2_CFilterInfo_tests.cpp
L2_CFilterInfo.cpp/h	L2_CFmSimulationInfo_driver.cpp
L2_CFmSimulationInfo.cpp/h	L2_CFmSimulationInfo_sequencer.cpp
L2_CLevenbergMarqParms.cpp/h	L2_CFmSimulationInfo_tests.cpp
L2_CMatrixSource.cpp/h	L2_CLevenbergMarqParms_driver.cpp
L2_CStateInformation.cpp/h	L2_CLevenbergMarqParms_sequencer.cpp
L2_CStepControlParameters.cpp/h	L2_CLevenbergMarqParms_tests.cpp
L2_CStepInformation.cpp/h	L2_CStateInformation_driver.cpp
L2_CStrategyTableData.cpp/h	L2_CStateInformation_sequencer.cpp
L2_CVectorSourceInfo.cpp/h	L2_CStateInformation_tests.cpp
L2_CVectorsInfo.cpp/h	L2_CStepControlParameters_driver.cpp
db_connect.h	L2_CStepControlParameters_sequencer.cpp
	L2_CStepControlParameters_tests.cpp
Makefile.local.in	L2_CStepInformation_driver.cpp



	L2_CStepInformation_sequencer.cpp
Unit Test Code	L2_CStepInformation_tests.cpp
L2_CALLMapsInformation_driver.cpp	L2_CStrategyTable_driver.cpp
L2_CALLMapsInformation_sequencer.cpp	L2_CStrategyTable_sequencer.cpp
L2_CALLMapsInformation_tests.cpp	L2_CStrategyTable_tests.cpp
L2_CApodizationInfo_driver.cpp	L2_CVectorSourceInfo_driver.cpp
L2_CApodizationInfo_sequencer.cpp	L2_CVectorSourceInfo_sequencer.cpp
L2_CApodizationInfo_tests.cpp	L2_CVectorSourceInfo_tests.cpp
L2_CAPrioriInfo_driver.cpp	L2_CVectorsInfo_driver.cpp
L2_CAPrioriInfo_sequencer.cpp	L2_CVectorsInfo_sequencer.cpp
L2_CAPrioriInfo_tests.cpp	L2_CVectorsInfo_tests.cpp
L2_CElementMapInfo_driver.cpp	

6.2.8.1 DataAccess (Strategy_Table)

/vobs/L2_Retrieval/Strategy_Table/DataAccess	
L2_CALLMapsInformationDAO.cpp/h	L2_CElementMapInfoDAO_tests.cpp
L2_CApodizationInfoDAO.cpp/h	L2_CFilterInfoDAO_driver.cpp
L2_CAPrioriInfoDAO.cpp/h	L2_CFilterInfoDAO_tests.cpp
L2_CElementMapInfoDAO.cpp/h	L2_CFilterInfoDAO_sequencer.cpp
L2_CFilterInfoDAO.cpp/h	L2_CFmSimulationInfoDAO_driver.cpp
L2_CFmSimulationInfoDAO.cpp/h	L2_CFmSimulationInfoDAO_sequencer.cpp
L2_CLevenbergMarqParmsDAO.cpp/h	L2_CFmSimulationInfoDAO_tests.cpp
L2_CStateInformationDAO.cpp/h	L2_CLevenbergMarqParmsDAO_driver.cpp
L2_CStepControlParametersDAO.cpp/h	L2_CLevenbergMarqParmsDAO_sequencer.cpp
L2_CStepInformationDAO.cpp/h	L2_CLevenbergMarqParmsDAO_tests.cpp
L2_CStrategyTableDataDAO.cpp/h	L2_CStateInformationDAO_driver.cpp
L2_CVectorSourceInfoDAO.cpp/h	L2_CStateInformationDAO_sequencer.cpp
L2_CVectorsInfoDAO.cpp/h	L2_CStateInformationDAO_tests.cpp
	L2_CStepControlParametersDAO_driver.cpp
Makefile.local.in	L2_CStepControlParametersDAO_sequencer.cpp
	L2_CStepControlParametersDAO_tests.cpp
Unit Test Code	L2_CStepInformationDAO_driver.cpp
L2_CALLMapsInformationDAO_driver.cpp	L2_CStepInformationDAO_sequencer.cpp
L2_CALLMapsInformationDAO_sequencer.cpp	L2_CStepInformationDAO_tests.cpp
L2_CALLMapsInformationDAO_tests.cpp	L2_CStrategyTableDataDAO_driver.cpp
L2_CApodizationInfoDAO_driver.cpp	L2_CStrategyTableDataDAO_sequencer.cpp
L2_CApodizationInfoDAO_sequencer.cpp	L2_CStrategyTableDataDAO_tests.cpp
L2_CApodizationInfoDAO_tests.cpp	L2_CVectorSourceInfoDAO_driver.cpp
L2_CAPrioriInfoDAO_driver.cpp	L2_CVectorSourceInfoDAO_sequencer.cpp
L2_CAPrioriInfoDAO_sequencer.cpp	L2_CVectorSourceInfoDAO_tests.cpp
L2_CAPrioriInfoDAO_tests.cpp	L2_CVectorsInfoDAO_driver.cpp
L2_CElementMapInfoDAO_driver.cpp	L2_CVectorsInfoDAO_sequencer.cpp



L2_CElementMapInfoDAO_sequencer.cpp	L2_CVectorsInfoDAO_tests.cpp
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6.2.9 Target_Scene_Attributes

/vobs/L2_Retrieval/Target_Scene_Attributes	
L2_C_BTCharacteristics.cpp/h	Makefile.local.in
L2_C_Geolocation.cpp/h	
L2_C_GeolocationPoint.cpp/h	<i>Unit Test Code</i>
L2_C_InstrumentAttributes.cpp/h	L2_C_BTCharacteristics_driver.cpp
L2_C_ObservationDateTime.cpp/h	L2_C_BTCharacteristics_sequencer.cpp
L2_C_TargetSceneAttributes.cpp/h	L2_C_BTCharacteristics_tests.cpp
	Target_Scene_Attributes_main.cpp

6.2.9.1 TargetSceneData (Target_Scene_Attributes)

/vobs/L2_Retrieval/Target_Scene_Attributes/TargetSceneData	
L2_C_BTCharacteristicsDAO.cpp/h	<i>Unit Test Code</i>
L2_C_GeolocationDAO.cpp/h	L2_C_BTCharacteristicsDAO_driver.cpp
L2_C_TargetSceneAttributesDAO.cpp/h	L2_C_BTCharacteristicsDAO_sequencer.cpp
	L2_C_BTCharacteristicsDAO_tests.cpp
Makefile.local.in	

6.2.10 Target_Step_Data

/vobs/L2_Retrieval/Target_Step_Data	
L2_C_APrioriCovariance_Data.cpp/h	L2_C_SpectralSpeciesMap.cpp/h
L2_C_BTAttributes_Data.cpp/h	L2_C_StepLevelData.cpp/h
L2_C_FAMS_Data.cpp/h	L2_C_TargetLevelData.cpp/h
L2_C_FMPressures_Data.cpp/h	L2_C_TargetLevelFSV.cpp/h
L2_C_MWDefinition_Data.cpp/h	L2_C_TargetLevelOutput.cpp/h
L2_C_Maps_Data.cpp/h	L2_C_TesMlsCombProdMatrixData.cpp/h
L2_C_RetrievalOutputProduct.cpp/h	
	Makefile.local.in

6.2.11 Target_Strategy

/vobs/L2_Retrieval/Target_Strategy	
L2_C_TargetStrategy.cpp/h	Makefile.local.in
L2_C_RayTable_Supplier.cpp/h	

6.2.11.1 APrioriCovariance (Target_Strategy)

/vobs/L2_Retrieval/Target_Strategy/APrioriCovariance	
L2_A_APrioriCovarianceMatrix.cpp/h	L2_C_APrioriAtmCovarianceMatrix_tests.cpp
L2_C_APrioriAtmCovarianceMatrix.cpp/h	L2_C_APrioriCovariance_Data_driver.cpp
L2_C_APrioriCovariance_Supplier.cpp/h	L2_C_APrioriCovariance_Data_sequencer.cpp



L2_C_APrioriNonAtmCovarianceMatrix.cpp/.h	L2_C_APrioriCovariance_Data_tests.cpp
	L2_C_APrioriCovariance_Supplier_driver.cpp
Makefile.local.in	L2_C_APrioriCovariance_Supplier_sequencer.cpp
	L2_C_APrioriCovariance_Supplier_tests.cpp
Unit Test Code	L2_C_APrioriNonAtmCovarianceMatrix_driver.cpp
L2_C_APrioriAtmCovarianceMatrix_driver.cpp	L2_C_APrioriNonAtmCovarianceMatrix_sequencer.cpp
L2_C_APrioriAtmCovarianceMatrix_sequencer.cpp	L2_C_APrioriNonAtmCovarianceMatrix_tests.cpp

6.2.11.2 Brightness_Temperature (Target_Strategy)

/vobs/L2_Retrieval/Target_Strategy/Brightness_Temperature	
L2_C_BTAttributes_Supplier.cpp/.h	L2_C_BTAttributes_Data_driver.cpp
	L2_C_BTAttributes_Data_sequencer.cpp
Makefile.local.in	L2_C_BTAttributes_Data_tests.cpp
	L2_C_BTAttributes_Supplier_driver.cpp
Unit Test Code	L2_C_BTAttributes_Supplier_sequencer.cpp
Brightness_Temperature_main.cpp	L2_C_BTAttributes_Supplier_tests.cpp

6.2.11.3 FAMS (Target_Strategy)

/vobs/L2_Retrieval/Target_Strategy/FAMS	
L2_A_FAMS_Supplier.cpp/.h	L2_C_FilterNFileObject_driver.cpp
L2_C_FAMS_Supplier.cpp/.h	L2_C_FilterNFileObject_sequencer.cpp
L2_C_FilterNFileObject.cpp/.h	L2_C_FilterNFileObject_tests.cpp
L2_C_NesrNFileObject.cpp/.h	L2_C_NesrNFileObject_driver.cpp
L2_C_NoiseNFileObject.cpp/.h	L2_C_NesrNFileObject_sequencer.cpp
L2_C_RadianceNFileObject.cpp/.h	L2_C_NesrNFileObject_tests.cpp
L2_C_SimSpectrumSupplier.cpp/.h	L2_C_NoiseNFileObject_driver.cpp
	L2_C_NoiseNFileObject_sequencer.cpp
Makefile.local.in	L2_C_NoiseNFileObject_tests.cpp
	L2_C_RadianceNFileObject_driver.cpp
Unit Test Code	L2_C_RadianceNFileObject_sequencer.cpp
L2_C_FAMS_Data_driver.cpp	L2_C_RadianceNFileObject_tests.cpp
L2_C_FAMS_Data_sequencer.cpp	L2_C_SimSpectrumSupplier_driver.cpp
L2_C_FAMS_Data_tests.cpp	L2_C_SimSpectrumSupplier_sequencer.cpp
L2_C_FAMS_Supplier_driver.cpp	L2_C_SimSpectrumSupplier_tests.cpp
L2_C_FAMS_Supplier_sequencer.cpp	main.cpp
L2_C_FAMS_Supplier_tests.cpp	



6.2.11.4 FM_Pressure (Target_Strategy)

/vobs/L2_Retrieval/Target_Strategy/FM_Pressure	
L2_C_FMPressures_Supplier.cpp/h	L2_C_FMPressures_Data_sequencer.cpp
L2_C_SurfacePressure_Supplier.cpp/h	L2_C_FMPressures_Data_tests.cpp
	L2_C_FMPressures_Supplier_driver.cpp
Makefile.local.in	L2_C_FMPressures_Supplier_sequencer.cpp
	L2_C_FMPressures_Supplier_tests.cpp
Unit Test Code	L2_C_SurfacePressure_Supplier_driver.cpp
FMPressTest.cpp/h	L2_C_SurfacePressure_Supplier_sequencer.cpp
L2_C_FMPressures_Data_driver.cpp	L2_C_SurfacePressure_Supplier_tests.cpp

6.2.11.5 GmaoMet_Reader (Target_Strategy)

/vobs/L2_Retrieval/Target_Strategy/GmaoMet_Reader	
L2_C_GmaoMet_Reader.cpp/h	Unit Test Code
	L2_C_GmaoMet_Reader_driver.cpp
Makefile.local.in	L2_C_GmaoMet_Reader_sequencer.cpp
	L2_C_GmaoMet_Reader_tests.cpp

6.2.11.6 MapSupplier (Target_Strategy)

/vobs/L2_Retrieval/Target_Strategy/MapSupplier	
L2_C_Maps_Supplier.cpp/h	L2_C_Maps_Supplier_driver.cpp
L2_C_RetrievalLevels.cpp/h	L2_C_Maps_Supplier_sequencer.cpp
	L2_C_Maps_Supplier_tests.cpp
Makefile.local.in	L2_C_RetrievalLevels_driver.cpp
	L2_C_RetrievalLevels_sequencer.cpp
Unit Test Code	L2_C_RetrievalLevels_tests.cpp
L2_C_Maps_Data_driver.cpp	L2_C_StepLevelMaps_driver.cpp
L2_C_Maps_Data_sequencer.cpp	L2_C_StepLevelMaps_sequencer.cpp
L2_C_Maps_Data_tests.cpp	L2_C_StepLevelMaps_tests.cpp

6.2.11.7 MicroWindows_Definition (Target_Strategy)

/vobs/L2_Retrieval/Target_Strategy/MicroWindows_Definition	
L2_C_MWDefinition_Supplier.cpp/h	L2_C_MWDefinition_Supplier_tests.cpp
	L2_C_OneMWDefinition_Data_driver.cpp
Makefile.local.in	L2_C_OneMWDefinition_Data_sequencer.cpp
	L2_C_OneMWDefinition_Data_tests.cpp
Unit Test Code	L2_C_StepLevelMWDefinition_Data_driver.cpp
L2_C_MWDefinition_Data_driver.cpp	L2_C_StepLevelMWDefinition_Data_sequencer.cpp
L2_C_MWDefinition_Data_sequencer.cpp	L2_C_StepLevelMWDefinition_Data_tests.cpp
L2_C_MWDefinition_Data_tests.cpp	MicroWindows_Definition_main.cpp



L2_C_MWDefinition_Supplier_driver.cpp	uWSupplierTest.cpp
L2_C_MWDefinition_Supplier_sequencer.cpp	

6.2.11.8 SpectralSpecies (Target_Strategy)

/vobs/L2_Retrieval/Target_Strategy/SpectralSpecies	
L2_A_SpectralSpecies_Supplier.cpp/h	L2_C_Cloud_Data_sequencer.cpp
L2_C_Calibration_Supplier.cpp/h	L2_C_Cloud_Data_tests.cpp
L2_C_CloudSupplier.cpp/h	L2_C_Cloud_Supplier_driver.cpp
L2_C_Emissivity_Supplier.cpp/h	L2_C_Cloud_Supplier_sequencer.cpp
	L2_C_Cloud_Supplier_tests.cpp
Makefile.local.in	L2_C_Emissivity_Data_driver.cpp
	L2_C_Emissivity_Data_sequencer.cpp
Unit Test Code	L2_C_Emissivity_Data_tests.cpp
L2_C_Calibration_Data_driver.cpp	L2_C_Emissivity_Supplier_driver.cpp
L2_C_Calibration_Data_sequencer.cpp	L2_C_Emissivity_Supplier_sequencer.cpp
L2_C_Calibration_Data_tests.cpp	L2_C_Emissivity_Supplier_tests.cpp
L2_C_Calibration_Supplier_driver.cpp	L2_C_StepSpectralSpeciesMap_driver.cpp
L2_C_Calibration_Supplier_sequencer.cpp	L2_C_StepSpectralSpeciesMap_sequencer.cpp
L2_C_Calibration_Supplier_tests.cpp	L2_C_StepSpectralSpeciesMap_tests.cpp
L2_C_Cloud_Data_driver.cpp	

6.2.11.9 State (Target_Strategy)

/vobs/L2_Retrieval/Target_Strategy/State	
L2_C_AtmProfiles_Supplier.cpp/h	L2_C_Profile_sequencer.cpp
	L2_C_Profile_tests.cpp
Makefile.local.in	L2_C_Species_driver.cpp
	L2_C_Species_sequencer.cpp
Unit Test Code	L2_C_Species_tests.cpp
L2_C_AtmProfiles_Data_driver.cpp	L2_C_SpeciesList_driver.cpp
L2_C_AtmProfiles_Data_sequencer.cpp	L2_C_SpeciesList_sequencer.cpp
L2_C_AtmProfiles_Data_tests.cpp	L2_C_SpeciesList_tests.cpp
L2_C_AtmProfiles_Supplier_driver.cpp	L2_C_SpeciesUnits_driver.cpp
L2_C_AtmProfiles_Supplier_sequencer.cpp	L2_C_SpeciesUnits_sequencer.cpp
L2_C_AtmProfiles_Supplier_tests.cpp	L2_C_SpeciesUnits_tests.cpp
L2_C_Profile_driver.cpp	

6.2.11.10 Surface_Data (Target_Strategy)

/vobs/L2_Retrieval/Target_Strategy/Surface_Data	
L2_C_SurfaceData_Supplier.cpp/h	L2_C_SurfaceData_Supplier_sequencer.cpp
	L2_C_SurfaceData_Supplier_tests.cpp
Makefile.local.in	L2_C_Surface_Data_driver.cpp
	L2_C_Surface_Data_sequencer.cpp



<i>Unit Test Code</i>	L2_C_Surface_Data_tests.cpp
L2_C_SurfaceData_Supplier_driver.cpp	

6.2.11.11 Surface_Emissivity (Target Strategy)

/vobs/L2_Retrieval/Target_Strategy/Surface_Emissivity	
L2_A_SurfaceEmissivityProperties.cpp/h	L2_C_EmisMap_Data_tests.cpp
L2_C_DirStream.cpp/h	L2_C_LandCoverMap_driver.cpp
L2_C_LandCoverMap.cpp/h	L2_C_LandCoverMap_sequencer.cpp
L2_C_LandCoverNFileObject.cpp/h	L2_C_LandCoverMap_tests.cpp
L2_C_MasudaOceanFileObject.cpp/h	L2_C_LandCoverNFileObject_driver.cpp
L2_C_Surface_Ocean_Masuda.cpp/h	L2_C_LandCoverNFileObject_sequencer.cpp
L2_C_USGS_Goode.cpp/h	L2_C_LandCoverNFileObject_tests.cpp
	L2_C_MasudaOceanFileObject_driver.cpp
Makefile.local.in	L2_C_MasudaOceanFileObject_sequencer.cpp
	L2_C_MasudaOceanFileObject_tests.cpp
<i>Unit Test Code</i>	L2_C_StepEmisMap_Data_driver.cpp
L2_C_DirStream_driver.cpp	L2_C_StepEmisMap_Data_sequencer.cpp
L2_C_DirStream_sequencer.cpp	L2_C_StepEmisMap_Data_tests.cpp
L2_C_DirStream_tests.cpp	L2_C_Surface_Ocean_Masuda_driver.cpp
L2_C_ElanorFileObject_driver.cpp	L2_C_Surface_Ocean_Masuda_sequencer.cpp
L2_C_ElanorFileObject_sequencer.cpp	L2_C_Surface_Ocean_Masuda_tests.cpp
L2_C_ElanorFileObject_tests.cpp	L2_C_USGS_Goode_driver.cpp
L2_C_EmisMap_Data_driver.cpp	L2_C_USGS_Goode_sequencer.cpp
L2_C_EmisMap_Data_sequencer.cpp	L2_C_USGS_Goode_tests.cpp

6.3 FILES

All files listed below reside in ClearCase for Release [15.0](#).

6.3.1 Delivery

Directory contains the documents, scripts, links and files that generate and compose the L2 Retrieval PGE delivery package.

/vobs/L2_Retrieval/delivery/bin	
ELANOR_main	Link to /vobs/L2_Retrieval/ELANOR/bin/ELANOR_main (ELANOR standalone executable)
L2_Retrieval_Main	Link to /vobs/L2_Retrieval/bin/L2_Retrieval_main (L2 Retrieval PGE executable)
StandaloneErrorAnalysisWrapper.sav	Link to /vobs/L2_Retrieval/Analysis/IDL/bin/StandaloneErrorAnalysisWrapper.sav (IDL Error Analysis executable)
/vobs/L2_Retrieval/delivery/control_files	
L2_Retrieval_def.dat	Link to /vobs/L2_Retrieval/test/in/L2_Retrieval_def.dat (L2 Retrieval PGE parameter definition and control file)
usrInput.in.asc	Link to /vobs/L2_Retrieval/test/in/usrInput.in.asc



	(File contains ELANOR input parameters that override the defaults)
LimbRayTable.asc	Link to /vobs/L2_Retrieval/test/in/LimbRayTable.asc (File contains the limb ray table that provides a flexible way of choosing ray tangent levels)
NadirRayTable.asc	Link to /vobs/L2_Retrieval/test/in/NadirRayTable.asc (File contains the nadir ray table that provides a flexible way of choosing ray tangent levels)
/vobs/L2_Retrieval/delivery/docs	
L2_Retrieval_PGE_Spec.doc	Link to /vobs/doc/SDPS/PGE_Spec/L2/ L2_Retrieval_PGE_Spec_R11.0.doc (PGE Definition and Production Rule Document)
TES_L2_miniODT.doc	Document describes how to set-up and run mini version of the One Day Tests (ODT) with a delivery package
changelog.txt	File contains pertinent information of the updates made to the deliveries
current_errata.txt	File contains list of known errata in the deliveries
database_description_document.doc	Link to /vobs/doc/SDPS/Database/ database_description_document.doc
environment_variables	Link to /vobs/L2_Retrieval/artifacts/ setup_env (script that sets up environment variables to build/run L2 Retrieval PGE on Linux)
/vobs/L2_Retrieval/delivery/in	
D5TES1.ops.asm.inst2d_met_x.GEOS501.20040920_0300.V01.hdf D5TES1.ops.asm.inst2d_met_x.GEOS520.20060814_0600.V01.hdf D5TES2.ops.asm.inst3d_met_p.GEOS501.20060510_0000.V01.hdf D5TES1.ops.asm.inst2d_met_x.GEOS501.20040920_0600.V01.hdf D5TES1.ops.asm.inst2d_met_x.GEOS520.20060814_0900.V01.hdf D5TES2.ops.asm.inst3d_met_p.GEOS501.20070710_0000.V01.hdf D5TES1.ops.asm.inst2d_met_x.GEOS501.20040920_0900.V01.hdf D5TES1.ops.asm.inst2d_met_x.GEOS520.20060814_1200.V01.hdf D5TES2.ops.asm.inst3d_met_p.GEOS501.20070710_0600.V01.hdf D5TES1.ops.asm.inst2d_met_x.GEOS501.20040920_1200.V01.hdf D5TES1.ops.asm.inst2d_met_x.GEOS520.20060814_1500.V01.hdf D5TES2.ops.asm.inst3d_met_p.GEOS510.20040920_0000.V01.hdf D5TES1.ops.asm.inst2d_met_x.GEOS501.20040920_1500.V01.hdf D5TES1.ops.asm.inst2d_met_x.GEOS520.20060814_1800.V01.hdf D5TES2.ops.asm.inst3d_met_p.GEOS510.20040920_0600.V01.hdf D5TES1.ops.asm.inst2d_met_x.GEOS501.20040920_1800.V01.hdf D5TES1.ops.asm.inst2d_met_x.GEOS520.20060814_2100.V01.hdf D5TES2.ops.asm.inst3d_met_p.GEOS510.20040920_1200.V01.hdf D5TES1.ops.asm.inst2d_met_x.GEOS501.20050521_1500.V01.hdf D5TES1.ops.asm.inst2d_met_x.GEOS520.20081027_1200.V01.hdf D5TES2.ops.asm.inst3d_met_p.GEOS510.20040920_1800.V01.hdf D5TES1.ops.asm.inst2d_met_x.GEOS501.20050521_1800.V01.hdf D5TES1.ops.asm.inst2d_met_x.GEOS520.20081027_1500.V01.hdf D5TES2.ops.asm.inst3d_met_p.GEOS510.20060414_1800.V01.hdf D5TES1.ops.asm.inst2d_met_x.GEOS501.20060131_1800.V01.hdf D5TES1.ops.asm.inst2d_met_x.GEOS520.20090123_0600.V01.hdf D5TES2.ops.asm.inst3d_met_p.GEOS510.20060415_0000.V01.hdf D5TES1.ops.asm.inst2d_met_x.GEOS501.20060131_2100.V01.hdf D5TES1.ops.asm.inst2d_met_x.GEOS520.20090123_0900.V01.hdf D5TES2.ops.asm.inst3d_met_p.GEOS510.20060617_1800.V01.hdf D5TES1.ops.asm.inst2d_met_x.GEOS501.20060509_2100.V01.hdf D5TES1.ops.asm.inst2d_met_x.GEOS520.20090209_1200.V01.hdf D5TES2.ops.asm.inst3d_met_p.GEOS510.20060618_0000.V01.hdf D5TES1.ops.asm.inst2d_met_x.GEOS501.20060510_0000.V01.hdf D5TES1.ops.asm.inst2d_met_x.GEOS520.20090209_1500.V01.hdf D5TES2.ops.asm.inst3d_met_p.GEOS510.20060814_0600.V01.hdf	

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D5TES1.ops.asm.inst2d_met_x.GEOS520.20111122_0900.V01.hdf
D5TES2.ops.asm.inst3d_met_p.GEOS510.20060914_0600.V01.hdf
D5TES1.ops.asm.inst2d_met_x.GEOS510.20040920_0300.V01.hdf
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D5TES1.ops.asm.inst2d_met_x.GEOS520.20111123_0000.V01.hdf
D5TES2.ops.asm.inst3d_met_p.GEOS520.20060814_0600.V01.hdf
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D5TES2.ops.asm.inst3d_met_p.GEOS500.20040920_0600.V01.hdf
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D5TES2.ops.asm.inst3d_met_p.GEOS520.20090123_0600.V01.hdf
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D5TES2.ops.asm.inst3d_met_p.GEOS501.20040920_0600.V01.hdf
D5TES2.ops.asm.inst3d_met_p.GEOS520.20090123_1200.V01.hdf
D5TES1.ops.asm.inst2d_met_x.GEOS510.20060617_2100.V01.hdf
D5TES2.ops.asm.inst3d_met_p.GEOS501.20040920_1200.V01.hdf
D5TES2.ops.asm.inst3d_met_p.GEOS520.20090209_1200.V01.hdf
D5TES1.ops.asm.inst2d_met_x.GEOS510.20060814_0900.V01.hdf
D5TES2.ops.asm.inst3d_met_p.GEOS501.20040920_1800.V01.hdf
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D5TES2.ops.asm.inst3d_met_p.GEOS501.20050521_1200.V01.hdf
D5TES2.ops.asm.inst3d_met_p.GEOS520.20111122_0600.V01.hdf
D5TES1.ops.asm.inst2d_met_x.GEOS510.20060914_0600.V01.hdf
D5TES2.ops.asm.inst3d_met_p.GEOS501.20050521_1800.V01.hdf
D5TES2.ops.asm.inst3d_met_p.GEOS520.20111122_1200.V01.hdf
D5TES1.ops.asm.inst2d_met_x.GEOS510.20060914_0900.V01.hdf
D5TES2.ops.asm.inst3d_met_p.GEOS501.20060131_1800.V01.hdf
D5TES2.ops.asm.inst3d_met_p.GEOS520.20111122_1800.V01.hdf
D5TES1.ops.asm.inst2d_met_x.GEOS520.20060814_0000.V01.hdf
D5TES2.ops.asm.inst3d_met_p.GEOS501.20060201_0000.V01.hdf
D5TES2.ops.asm.inst3d_met_p.GEOS520.20111123_0000.V01.hdf
D5TES1.ops.asm.inst2d_met_x.GEOS520.20060814_0300.V01.hdf
D5TES2.ops.asm.inst3d_met_p.GEOS501.20060509_1800.V01.hdf
D5TES2.ops.asm.inst3d_met_p.GEOS520.20111123_0600.V01.hdf



Tgt_NESR_Run0000002147_Seq0000003_Scan000002
Tgt_NESR_Run0000007656_Seq0000001_Scan000094
Tgt_Spectrum_Run0000002147_Seq0000576_Scan000004
Tgt_NESR_Run0000002147_Seq0000005_Scan000004
Tgt_NESR_Run0000007741_Seq0000001_Scan000082
Tgt_Spectrum_Run0000002931_Seq0000275_Scan000004
Tgt_NESR_Run0000002147_Seq0000015_Scan000005
Tgt_NESR_Run0000008553_Seq0000001_Scan000016
Tgt_Spectrum_Run0000003049_Seq0000001_Scan000016
Tgt_NESR_Run0000002147_Seq0000026_Scan000002
Tgt_NESR_Run0000009622_Seq0000001_Scan000162
Tgt_Spectrum_Run0000003293_Seq0000001_Scan000014
Tgt_NESR_Run0000002147_Seq0000026_Scan000003
Tgt_NESR_Run0000009713_Seq0000001_Scan000016
Tgt_Spectrum_Run0000003318_Seq0000088_Scan000003
Tgt_NESR_Run0000002147_Seq0000032_Scan000002
Tgt_NESR_Run0000010262_Seq0000655_Scan000002
Tgt_Spectrum_Run0000003631_Seq0000452_Scan000004
Tgt_NESR_Run0000002147_Seq0000032_Scan000003
Tgt_NESR_Run0000010303_Seq0000001_Scan000031
Tgt_Spectrum_Run0000004155_Seq0000001_Scan000012
Tgt_NESR_Run0000002147_Seq0000067_Scan000004
Tgt_NESR_Run0000010310_Seq0000075_Scan000002
Tgt_Spectrum_Run0000004399_Seq0000452_Scan000004
Tgt_NESR_Run0000002147_Seq0000171_Scan000002
Tgt_NESR_Run0000010310_Seq0000083_Scan000003
Tgt_Spectrum_Run0000004825_Seq0000046_Scan000004
Tgt_NESR_Run0000002147_Seq0000171_Scan000003
Tgt_NESR_Run0000013942_Seq0000001_Scan000001
Tgt_Spectrum_Run0000004914_Seq0000001_Scan000119
Tgt_NESR_Run0000002147_Seq0000208_Scan000004
Tgt_NESR_Run0000013942_Seq0000123_Scan000001
Tgt_Spectrum_Run0000004973_Seq0000969_Scan000004
Tgt_NESR_Run0000002147_Seq0000208_Scan000005
Tgt_NESR_Run0000013942_Seq0000123_Scan000002
Tgt_Spectrum_Run0000005414_Seq0000001_Scan000008
Tgt_NESR_Run0000002147_Seq0000241_Scan000002
Tgt_NESR_Run0000013942_Seq0000330_Scan000001
Tgt_Spectrum_Run0000005414_Seq0000001_Scan000018
Tgt_NESR_Run0000002147_Seq0000241_Scan000003
Tgt_NESR_Run0000013942_Seq0000330_Scan000002
Tgt_Spectrum_Run0000005563_Seq0000001_Scan000004
Tgt_NESR_Run0000002147_Seq0000242_Scan000002
Tgt_NESR_Run0000023700_Seq0000001_Scan000000
Tgt_Spectrum_Run0000005563_Seq0000001_Scan000009
Tgt_NESR_Run0000002147_Seq0000242_Scan000003
Tgt_Spectrum_Run0000002147_Seq0000003_Scan000002
Tgt_Spectrum_Run0000005563_Seq0000001_Scan000017
Tgt_NESR_Run0000002147_Seq0000389_Scan000002
Tgt_Spectrum_Run0000002147_Seq0000005_Scan000004
Tgt_Spectrum_Run0000007656_Seq0000001_Scan000094
Tgt_NESR_Run0000002147_Seq0000576_Scan000004
Tgt_Spectrum_Run0000002147_Seq0000015_Scan000005
Tgt_Spectrum_Run0000007741_Seq0000001_Scan000082



```

Tgt_NESR_Run0000002931_Seq0000275_Scan000004
Tgt_Spectrum_Run0000002147_Seq0000026_Scan000002
Tgt_Spectrum_Run0000008553_Seq0000001_Scan000016
Tgt_NESR_Run0000003049_Seq0000001_Scan000016
Tgt_Spectrum_Run0000002147_Seq0000026_Scan000003
Tgt_Spectrum_Run0000009622_Seq0000001_Scan000162
Tgt_NESR_Run0000003293_Seq0000001_Scan000014
Tgt_Spectrum_Run0000002147_Seq0000032_Scan000002
Tgt_Spectrum_Run0000009713_Seq0000001_Scan000016
Tgt_NESR_Run0000003318_Seq0000088_Scan000003
Tgt_Spectrum_Run0000002147_Seq0000032_Scan000003
Tgt_Spectrum_Run0000010262_Seq0000655_Scan000002
Tgt_NESR_Run0000003631_Seq0000452_Scan000004
Tgt_Spectrum_Run0000002147_Seq0000067_Scan000004
Tgt_Spectrum_Run0000010303_Seq0000001_Scan000031
Tgt_NESR_Run0000004155_Seq0000001_Scan000012
Tgt_Spectrum_Run0000002147_Seq0000171_Scan000002
Tgt_Spectrum_Run0000010310_Seq0000075_Scan000002
Tgt_NESR_Run0000004399_Seq0000452_Scan000004
Tgt_Spectrum_Run0000002147_Seq0000171_Scan000003
Tgt_Spectrum_Run0000010310_Seq0000083_Scan000003
Tgt_NESR_Run0000004825_Seq0000046_Scan000004
Tgt_Spectrum_Run0000002147_Seq0000208_Scan000004
Tgt_Spectrum_Run0000013942_Seq0000001_Scan000001
Tgt_NESR_Run0000004914_Seq0000001_Scan000119
Tgt_Spectrum_Run0000002147_Seq0000208_Scan000005
Tgt_Spectrum_Run0000013942_Seq0000123_Scan000001
Tgt_NESR_Run0000004973_Seq0000969_Scan000004
Tgt_Spectrum_Run0000002147_Seq0000241_Scan000002
Tgt_Spectrum_Run0000013942_Seq0000123_Scan000002
Tgt_NESR_Run0000005414_Seq0000001_Scan000018
Tgt_Spectrum_Run0000002147_Seq0000241_Scan000003
Tgt_Spectrum_Run0000013942_Seq0000330_Scan000001
Tgt_NESR_Run0000005563_Seq0000001_Scan000004
Tgt_Spectrum_Run0000002147_Seq0000242_Scan000002
Tgt_Spectrum_Run0000013942_Seq0000330_Scan000002
Tgt_NESR_Run0000005563_Seq0000001_Scan000009
Tgt_Spectrum_Run0000002147_Seq0000242_Scan000003
Tgt_Spectrum_Run0000023700_Seq0000001_Scan000000
Tgt_NESR_Run0000005563_Seq0000001_Scan000017
Tgt_Spectrum_Run0000002147_Seq0000389_Scan000002
    
```

LimbRayTable.asc
NadirRayTable.asc
pcf_test.dat
usrInput.in.asc

/vobs/L2_Retrieval/delivery/out	
TargetLevelData	Subdirectory that contain the output structure
/vobs/L2_Retrieval/delivery/scripts	
archive_target	Link to /vobs/Support/scripts/archive_target (Script that recursively archives the delivery directory, keeps an archive receipt, and writes an extraction script)

clean_test	Script that deletes L2 output from the database
run_test	Script that runs L2_Retrieval PGE
sql	Directory contains links to the database scripts
/vobs/L2_Retrieval/delivery/scripts/sql	
deleteFrom_L1ABTables.sql delete_L2SceneTables_OneTargetScene.csh delete_L2SceneTables_OneTargetScene.sql delete_L2Tables_OneRun.csh delete_L2_Tables_OneRun.sql import_one_run.sql import_one_target_scene.sql insert_L1AEngineering_initial.sql insert_L1AGeolocation_initial.sql insert_L1B_Limb_BT_initial.sql insert_L1B_Nadir_BT_initial.sql insert_L1B_Tgt_Spectra_Quality.sql insert_RunAttributes.sql insert_ScanAttributes.sql insert_StrategyTablesData.sql insert_TargetSceneAttributes.sql select_count_L1ABTables.sql select_count_StrategyTables.sql truncate_L2Tables.sql update_L1A_Engineering.sql update_L1AGeolocation.sql update_L1BLimbBT.sql update_L1BNadirBT.sql populateDatabase.csh	Links to database scripts (/vobs/L2_Retrieval/scripts)
	Script used to insert data in Strategy Tables and L1A/B Tables used by L2 Retrieval PGE for Release 11.0 v11.5 schema

6.3.2 Scripts

Directory contains the scripts to setup the database for L2 Retrieval PGE. Scripts are used by the L2_Retrieval PGE to populate the Level 1A and 1B tables.

/vobs/L2_Retrieval/scripts	
deleteFrom_L1ABTables.sql delete_L2Tables_OneRun.sql import_one_run.sql import_one_target_scene.sql insertData_CCurve.sql insertData_LakeTahoe.sql insertData_NH3.sql insert_L1A_Engineering_initial.sql insert_L1A_Geolocation_initial.sql insert_L1B_Limb_BT_initial.sql insert_L1B_Nadir_BT_initial.sql insert_L1B_Tgt_Spectra_Quality.sql insert_RealData.sql insert_RunAttributes.sql insert_ScanAttributes.sql insert_StrategyTablesData.sql insert_StrategyTablesData.sql.checkedout insert_TargetSceneAttributes.sql 11a_sql.txt	Oracle SQL scripts

l1a_sql_update.txt select_count_L1ABTables.sql select_count_StrategyTables.sql sqlnet.log truncate_L2Tables.sql update_L1A_Engineering.sql update_L1AGeolocation.sql update_L1BLimbBT.sql update_L1BNadirBT.sql	
delete_L2SceneTables_OneTargetScene.csh delete_L2SceneTables_OneTargetScene.sql delete_L2Tables_OneRun.csh delete_L2_Tables_OneRun.sql deleteFrom_L1ABTables.sql	Database purge script in event of failure or reprocessing
populateDatabase.csh	Script used to insert data in Strategy Tables and L1A/B Tables used by L2 Retrieval PGE for Release 15.0 v 151 schema
prepareScripts.csh	Script used to prepare initial data insertion for L1A/B Tables
l1a_sql.txt l1a_sql_update.txt	Master list of insertion and update scripts For L1A Table

6.4 DATABASE TABLES AND SCHEMA

See “TES Ground Data System Database Definition Document” [5] and “TES L2_Retrieval PGE Specification: PGE Definition and Production Rules” [2].

6.5 OPERATIONAL SUPPORT PRODUCTS (OSP)

For the following OSP tables, **/\${L2_OSP_PATH}** designates **/vobs/Support/osp/L2**. The OSP files with exception of ABSCO tables are delivered in **/vobs/Support/osp/L2/delivery/OSP-15.00.00**.

6.5.1 ABSCO

/\${L2_OSP_PATH}/ABSCO	Directory contains the links to the absorption coefficient table directories and the script that creates those links. “The absorption coefficient tables are generated using LBLRTM (Layer By Layer Radiative Transfer Model) for each line species that might be included in a forward model calculation. Absorption coefficients are calculated for each pressure and temperature point in the TES standard pressure/temperature grid. In order to accurately compute optical depths for a layer, the absorption coefficients are interpolated to the average pressure and temperature of the layer.”
make_ABSCO_Links	Script creates the links to the absorption coefficient table directories given the environment variable, ABSCO_PATH. ABSCO_PATH is set to the following absorption coefficient pathname: /project/ABSCO/v3.0/Single_MacroWindow_CoarserGrid_Data_FullFilter
1A1	Link to /\${ABSCO_PATH}/1A1
1B1	Link to /\${ABSCO_PATH}/1B1
1B2	Link to /\${ABSCO_PATH}/1B2
2A1	Link to /\${ABSCO_PATH}/2A1

2A3	Link to \${ABSCO_PATH}/2A3
2A4	Link to \${ABSCO_PATH}/2A4
2B1	Link to \${ABSCO_PATH}/2B1

6.5.2 APriori

`\${L2_OSP_PATH}/APriori	Directory contains the subdirectories of the APriori data files that comprise the climatological estimates of the atmospheric state and amount of uncertainty.
`\${L2_OSP_PATH}/APriori/ConstraintVectors	Directory is to contain the constraint vectors; files are not available for this release.
`\${L2_OSP_PATH}/APriori/CONSTRAINT	Directory contains the constraint matrix files.
Constraint_Matrix_O3_NADIR_LOG_90S_90N	File contains the pre-computed constraints for O3 (Nadir)
`\${L2_OSP_PATH}/APriori/Climatological_Constraints	Directory contains the covariance matrices and specification files. The data for the covariance matrices is calculated from MOZART Aura Climatology results.
Clim_Constraint_Matrix_<species1>_Linear_<latitude_range> Clim_Constraint_Matrix_<species2>_Linear_<latitude_range> Clim_Constraint_Spec_<species1>_Linear Clim_Constraint_Spec_<species2>_LOG	<species1>: {CALSCALE, EMIS, TATM} <species2>: {CLOUDEX, HNO3, O3} <latitude_range>: (18N_54N, 18S_18N, 54N_90N, 54S_18S, 90S_54S)
`\${L2_OSP_PATH}/APriori/Climatological_Constraints_CO2Step	Directory contains the EMIS climatological constraint matrices and specification file used for CO2 step
Clim_Constraint_Matrix_EMIS_Linear_<latitude_range> Clim_Constraint_Spec_EMIS_Linear	<latitude_range>: (18N_54N, 18S_18N, 54N_90N, 54S_18S, 90S_54S)
Clim_Constraint_Matrix_<species>_Log_<latitude_range> Clim_Constraint_Spec_<species>_Log	<species>: {CLOUDEX, HNO3, O3} <latitude_range>: (18N_54N, 18S_18N, 54N_90N, 54S_18S, 90S_54S)
`\${L2_OSP_PATH}/APriori/Covariance	Directory contains the covariance matrices and specification files. The covariance matrices provide estimates of variability for the chemical species being retrieved.
Covariance_Matrix_<species>_Linear_<latitude_range> Covariance_Spec_<species>_Linear	<species>: {CALSCALE, EMIS, TATM} <latitude_range>: (18N_54N, 18S_18N, 54N_90N, 54S_18S, 90S_54S)
Covariance_Matrix_<species>_Log_<latitude_range> Covariance_Spec_<species>_Log Covariance_Matrix_NH3_Log_90S_90N_mod Covariance_Matrix_NH3_Log_90S_90N_pol Covariance_Matrix_NH3_Log_90S_90N_unp	<species>: {CCL4, CFC11, CFC12, CH4, CLOUDEX, CO2, CO, H2O, H2O_HDO_Log, HCFC22, HDO, HNO3, N2O, NO2, NO, O3, SF6} <latitude_range>: (18N_54N, 18S_18N, 54N_90N, 54S_18S, 90S_54S)
`\${L2_OSP_PATH}/APriori/Covariance/DiagonalUncertainty	Directory contains the amount of uncertainty for non-atmospheric species
Diagonal_Uncertainty_TSUR_NADIR_90S_90N	File contains covariance diagonal uncertainty for surface temperature.
`\${L2_OSP_PATH}/APriori/DiagonalUncertainty	Directory contains the amount of uncertainty for non-atmospheric species
Diagonal_Uncertainty_EMIS_NADIR_90S_90N_AllLand_AllSeason	File contains the diagonal uncertainty for surface emissivity.
Diagonal_Uncertainty_PCLOUD_LIMB_90S_90N Diagonal_Uncertainty_PCLOUD_NADIR_90S_90N	Files contain the diagonal uncertainty for clouds
Diagonal_Uncertainty_PTGANG_LIMB_90S_90N	File contains the diagonal uncertainty for pointing angle.
Diagonal_Uncertainty_TSUR_NADIR_90S_90N	File contains the diagonal uncertainty for surface



	temperature.
#{L2_OSP_PATH}/APriori/DiagonalUncertainty/IGR	Subdirectory contains the amount of uncertainty for cloud initial guess refinement
Diagonal Uncertainty_PCLOUD_NADIR_90S_90N	File contains the diagonal uncertainty for clouds
#{L2_OSP_PATH}/APriori/Covariance	Directory contains the covariance matrices and the specification files
Covariance_Matrix_<species>_LOG_<latitude_range> Covariance_Matrix_CALSCALE_Linear_<latitude_range> Covariance_Matrix_EMIS_LINEAR_<latitude_range> Covariance_Matrix_TATM_LINEAR_<latitude_range> Covariance_Matrix_H2O_HDO_Log_Log_<latitude_range> Covariance_Spec_<species>_Log Covariance_Spec_CALSCALE_Linear Covariance_Spec_EMIS_Linear Covariance_Spec_TATM_Linear	<species>: CCL4, CFC11, CFC12, CH3OH, CH4, CLOUDEST, CO, CO2, H2O, HCN, HCFC22, HCOOH, HDO, HNO3, N2O, NH3, NO, NO2, O3, OCS, PAN, SF6
#{L2_OSP_PATH}/APriori/Covariance/DiagonalUncertainty/Land	Directory contains the diagonal uncertainty covariance matrices for land
Diagonal Uncertainty_TSUR_NADIR_90S_90N	
#{L2_OSP_PATH}/APriori/Covariance/DiagonalUncertainty/Ocean	Directory contains the diagonal uncertainty covariance matrices for ocean
Diagonal Uncertainty_TSUR_NADIR_90S_90N	
#{L2_OSP_PATH}/APriori/PREMADE	Directory contains the pre-computed constraint matrices and specification files.
Constraint_Spec_<species>_NADIR_LOG Constraint_Spec_NH3_NADIR_LOG Constraint_Spec_CH3OH_NADIR_LOG Constraint_Spec_HCOOH_NADIR_LOG Constraint_Spec_TATM_NADIR_LINEAR_<latitude_range> Constraint_Matrix_TATM_LIMB_LINEAR_<latitude_range> Constraint_Matrix_O3_NADIR_LINEAR_<latitude_range> Constraint_Matrix_NH3_NADIR_LOG_90S_90N_<retrieval_level>_mod Constraint_Matrix_NH3_NADIR_LOG_90S_90N_<retrieval_level>_pol Constraint_Matrix_NH3_NADIR_LOG_90S_90N_<retrieval_level>_unp Constraint_Matrix_N2O_NADIR_LOG_90S_90N_<retrieval_level> Constraint_Matrix_HCOOH_NADIR_LOG_90S_90N_<retrieval_level>_enh Constraint_Matrix_HCOOH_NADIR_LOG_90S_90N_<retrieval_level>_cln Constraint_Matrix_CH3OH_NADIR_LOG_90S_90N_<retrieval_level>_LAND_ENH Constraint_Matrix_<species>_NADIR_LOG_<latitude_range>_<retrieval_level>	<species>: (CH3OH, CH4, CO, H2O, HCOOH, O3, CO2, N2O, NH3, OCS, PAN) <latitude_range>: (18N_54N, 18S_18N, 54N_90N, 54S_18S, 90S_54S) and (90S_90N) <retrieval_level>: (2, ..., 14) for <species> = (CO) <retrieval_level>: (9, ..., 18) for <species> = H2O <retrieval_level>: (2, ..., 26) for <species> = O3 <retrieval_level>: (2, ..., 28) for NADIR TATM <retrieval_level>: (2, ..., 29) for LIMB TATM <retrieval_level>: (4, ..., 14) for CO2 <retrieval_level>: (8, ..., 14) for NH3 <retrieval_level>: (20, ..., 26) for CH4, N2O <retrieval_level>: (19, ..., 22) for CH3OH <retrieval_level>: (10, ..., 22) for HCOOH <retrieval_level>: (7, ..., 14) for OCS <retrieval_level>: (9, ..., 16) for PAN <retrieval_level>: (10, ..., 16) for HCN
Covariance_Matrix_O3_LIMB_LOG_<latitude_range>_<retrieval_level> Covariance_Matrix_TATM_LIMB_LINEAR_<latitude_range>_<retrieval_level>	<latitude_range>: (18N_54N, 18S_18N, 54N_90N, 54S_18S, 90S_54S) <retrieval_level>: (2, ..., 15) for H2O

Constraint_Spec_H2O_LIMB_LOG Constraint_Spec_O3_LIMB_LOG Constraint_Spec_TATM_LIMB_LINEAR	<retrieval_level>: (21, ..., 30) for O3 <retrieval_level>: (20, ..., 29) for O3
\$(L2_OSP_PATH)/APriori/PREMADE/H2O_HDO	Directory contains the pre-computed constraint matrices and specification files.
Constraint_Matrix_<species>_<view_mode>_LOG_LOG_<latitude_range>_<retrieval_level>_<retrieval_level>	<species>: (H2O_HDO, H2O, HDO) <view_mode>: (NADIR, LIMB)
Constraint_Spec_H2O_HDO_<view_mode>_LOG_LOG	<latitude_range>: (18N_54N, 18S_18N, 54N_90N, 54S_18S, 90S_54S)
Constraint_Spec_<species>_<view_mode>_LOG	<retrieval_level>: (2, ..., 15) for LIMB <retrieval_level>: (9, ..., 18) for NADIR
\$(L2_OSP_PATH)/Apriori/PREMADE/TATM_CO2_step1	Directory contains the pre-computed constraint matrices and specification files.
Constraint_Matrix_TATM_NADIR_LINEAR_<latitude_range>_<retrieval_level>	<species>: (TATM)
Constraint_Spec_TATM_NADIR_LINEAR	<latitude_range>: (90S_90N) <retrieval_level>: (19, ..., 28)

6.5.3 AltitudeDefinitions

\$(L2_OSP_PATH)/AltitudeDefinitions	Directory contains the standard pressure files
N_MIDLAT_Altitude_Vs_Pressure.asc N_POLAR_Altitude_Vs_Pressure.asc S_MIDLAT_Altitude_Vs_Pressure.asc S_POLAR_Altitude_Vs_Pressure.asc TROPICS_Altitude_Vs_Pressure.asc	Files contain standard pressures used by Strategy to calculate surface data.

6.5.4 ApodCoefficients

\$(L2_OSP_PATH)/ApodCoefficients	Directory contains the apodization coefficient files that provide the polynomial parameters to approximate the instrument line shape and link to L1B
rectRealFnCoeff.in.asc	File contains the real part of the ILS function.
rectImagFnCoeff.in.asc	File contains the imaginary part of the ILS function.
L1B_FPFilterResDepAttributes	Link to the directory containing the L1B files that are used to obtain MaxOPD values: /vobs/Support/osp/L1B/ScienceData/FPFilterResDepAttributes

6.5.5 BrightnessTemperature

\$(L2_OSP_PATH)/BrightnessTemperature	Directory contains the Brightness Temperature link and file.
BT11_Spec.asc	File contains the specification for BT11.
L1B_BT_Frequency_Ranges.txt	Link to the file that contains the frequency ranges and thresholds used by L1B Reformat PGE in the brightness temperature computation: /vobs/Support/osp/L1B/ScienceData/InterPixSignalVar/L1B_BT_Frequency_Ranges.txt
\$(L2_OSP_PATH)/BrightnessTemperature/Limb_1B1	
BT10_Spec.asc	File contains the Limb Brightness Temperature Parameters
\$(L2_OSP_PATH)/BrightnessTemperature/Limb_1B2	
BT10_Spec.asc	File contains the Limb Brightness Temperature

	Parameters
--	------------

6.5.6 CALSCALE

\${L2_OSP_PATH}/CALSCALE	.
CALSCALE_Initial_Guess.asc	Initial guess profiles for calibration scaling parameters
True_State_CALSCALE	True state profiles for calibration scaling parameters

6.5.7 Climatology

\${L2_OSP_PATH}/Climatology/ODT	Directory contains subdirectories of the profiles used in generating radiances and in ELANOR retrieval algorithm for Production
\${L2_OSP_PATH}/Climatology/ODT/<species>	Directories contain Climatology specification and data files for TES retrieval and forward model species <species>: (CCL4, CFC11, CFC12, CH4, CO, CO2, HCFC22, HNO3, N2O, NO, NO2, O2, O3, OCS, SF6, NH3, CH3OH, HCOOH, HCN, PAN)
\${L2_OSP_PATH}/Climatology/ODT/<species>/Clim_Spec_<species>	Climatology specification file contains information needed to determine the directory structure and filenames for the climatology files of <species> <ul style="list-style-type: none"> Starting time and increment (universal) Starting longitude and increment Starting latitude and increment
\${L2_OSP_PATH}/Climatology/ODT/CO2/<year>/<month> \${L2_OSP_PATH}/Climatology/ODT/CH4/<year>/<month> \${L2_OSP_PATH}/Climatology/ODT/<species>/<month>	Directories contain time subdirectory of Climatology specification and data files of <species> for <year>: 4 digit representation of year 2004-2014 for CH4 and 2004-2015 for CO2 and N2O <month>: (JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC)
\${L2_OSP_PATH}/Climatology/ODT/<species>/<month>/0000UT_2400UT/<longitude_range>	Directories contain Climatology specification and data files for <longitude_range>: (000E_060E, 060E_120E, 120E_180E, 180E_240E, 240E_300E, 300E_360E)
\${L2_OSP_PATH}/Climatology/ODT/<species>/<month>/0000UT_2400UT/<longitude_range>/Clim_<species>_<month>_0000UT_2400UT_<longitude_range>_<latitude_range>	Climatology data files contain vertical profile of the atmospheric <species> and temperature on Standard Pressure grid for specified period in <month> and 0000UT_2400UT, and locality within <longitude_range> and <latitude_range>: (00N_30N, 30N_60N, 60N_90N, 30S_00N, 60S_30S, 90S_60S) The profiles will be used to determine the initial guess used in retrieval.
\${L2_OSP_PATH}/Climatology/ODT/NH3/<month>/0000UT_2400UT/000E_360E/<Clim_<NH3>_<month>_0000UT_2400UT_000E_360E_90S_90N_<pollution_level>	<pollution_level> : (cln, enh, mod)
\${L2_OSP_PATH}/Climatology/ODT/CH3OH/CLN_LAND/AtmProfiles_Data_LAND_CLN.asc	
\${L2_OSP_PATH}/Climatology/ODT/CH3OH/CLN_OCEAN/AtmProfiles_Data_OCEAN_CLN.asc	
\${L2_OSP_PATH}/Climatology/Ratio	Directory contains HDO subdirectory of the profiles used in generating radiances and in ELANOR retrieval algorithm

	for Production
`\${L2_OSP_PATH}/Climatology/Ratio/HDO`	Directories contain Climatology specification and data files for TES retrieval and forward model HDO species
`\${L2_OSP_PATH}/Climatology/Ratio/HDO/Clim_Spec_HDO`	Climatology specification file contains information needed to determine the directory structure and filenames for the climatology files of HDO <ul style="list-style-type: none"> • Starting time and increment (universal) • Starting longitude and increment • Starting latitude and increment
`\${L2_OSP_PATH}/Climatology/ratio/HDO/<month>`	Directories contain time subdirectory of Climatology specification and data files of HDO for <month>: (JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC)
`\${L2_OSP_PATH}/Climatology/Ratio/HDO/<month>/0000UT_2400UT/000E_360E/Clim_HDO_<month>_0000UT_2400UT_000E_360E_90S_90N`	Climatology data files contain vertical profile of HDO on Standard Pressure grid for specified period in <month> and 0000UT_2400UT, and locality within longitude_range of 0E to 360 E and latitude range of 90S to 90N The profile will be used to determine the initial guess used in retrieval.

6.5.8 Clouds

`\${L2_OSP_PATH}/Clouds`	Directory contains cloud absorption coefficient files
`\${L2_OSP_PATH}/Clouds/CloudAbsCoeffTier2.bin`	File contains cloud absorption coefficients for 5 micron radius and at frequencies of Tier-2 spacing; values were linearly interpolated from the coefficients provided by AER.
`\${L2_OSP_PATH}/CloudABSCoeffAER.asc`	Cloud absorption coefficient file provided by AER.
`\${L2_OSP_PATH}/Cloud_Initial_Guess.asc`	Initial guess profile for clouds
`\${L2_OSP_Path}/Cloud_Spec.asc`	File specification for clouds
`\${L2_OSP_Path}/True_State_Cloud_Properties`	True state profile for clouds

6.5.9 Continuum

`\${L2_OSP_PATH}/Continuum`	Directory contains the coefficient files for continuum species (CO2, H2O, N2, and O2). For each continuum species, there is one file for each filter (1A1, 1A2, 1B1, 1B2, 2A1, 2A2, 2A3, 2A4, and 2B1)
co2_cntnm_ac_table.1A1	n2_cntnm_ac_table.1A1
co2_cntnm_ac_table.1A2	n2_cntnm_ac_table.1A2
co2_cntnm_ac_table.1B1	n2_cntnm_ac_table.1B1
co2_cntnm_ac_table.1B2	n2_cntnm_ac_table.1B2
co2_cntnm_ac_table.2A1	n2_cntnm_ac_table.2A1
co2_cntnm_ac_table.2A2	n2_cntnm_ac_table.2A2
co2_cntnm_ac_table.2A3	n2_cntnm_ac_table.2A3
co2_cntnm_ac_table.2A4	n2_cntnm_ac_table.2A4
co2_cntnm_ac_table.2B1	n2_cntnm_ac_table.2B1
h2o_cntnm_ac_table.1A1	o2_cntnm_ac_table.1A1
h2o_cntnm_ac_table.1A2	o2_cntnm_ac_table.1A2
h2o_cntnm_ac_table.1B1	o2_cntnm_ac_table.1B1
h2o_cntnm_ac_table.1B2	o2_cntnm_ac_table.1B2
h2o_cntnm_ac_table.2A1	o2_cntnm_ac_table.2A1
h2o_cntnm_ac_table.2A2	o2_cntnm_ac_table.2A2
h2o_cntnm_ac_table.2A3	o2_cntnm_ac_table.2A3
h2o_cntnm_ac_table.2A4	o2_cntnm_ac_table.2A4
h2o_cntnm_ac_table.2B1	o2_cntnm_ac_table.2B1

6.5.10 DetectorTable

\$(L2_OSP_PATH)/DetectorTable	Directory contains files that are used in limb retrievals and provide the default default flags settings.
DetectorTableBad.asc	Files contain the settings used to determine which detectors (2B1, 2A1, 2A3, 2A4, 1B1, 1B2, and 1A1) contain bad or cloudy data.
DetectorTableCloudy.asc	

6.5.11 ELANOR Temp

\$(L2_OSP_PATH)/ELANOR_Temp	Directory contains temporary files for ELANOR
keywd_def_Limb.dat	ELANOR keyword parameter file for limb
keywd_def_Nadir.dat	ELANOR keyword parameter file for nadir

6.5.12 Emis Data

\$(L2_OSP_PATH)/EmisData/Emissivity	.Directory contains emissivity files for different land surface types. Data in the files comes from ASTER databases.
Emissivity_01_AspphaltGrassDeciduous Emissivity_02_10_DryGrass Emissivity_03_07_23_Grass Emissivity_04_05_Grass_DryGrass Emissivity_06_Grass_Deciduous_Conifer Emissivity_08_11_20_Deciduous Emissivity_09_Deciduous_Grass Emissivity_12_13_14_17_18_21_Conifer	Emissivity_15_22_Deciduous_Conifer Emissivity_16_Ocean Emissivity_19_BrownSand Emissivity_24_Snow Emissivity_90_Alluvial_BrownSand Emissivity_Cirrus Emissivity_Cumulus
\$(L2_OSP_PATH)/EmisData/Landcover	Directory contains the file that provides a map of land overage properties.
USGS_Land_Characteristics	File used with emissivity data for different land surface types

6.5.13 FOV Coefficients

\$(L2_OSP_PATH)/FOVCoefficients	Directory contains field of view data files
CoBoresight.asc	File provides the offset for the TES detector arrays relative to the 2B detector (DFM #457)
FOV_model_<filter>_<pixel>.asc	FOV files provide angle and response information. <filter>: (1A1, 1A2, 1A3,1A4, 1B1, 1B2, 2A1, 2A2, 2A3, 2A4, 2B1) <pixel>: (0, ..., 15)

6.5.14 Filter Definitions

\$(L2_OSP_PATH)/FilterDefinitions	Directory contains filter specification file
Filter_spec.asc	File provides start frequency, end frequency, and number of nadir/limb points for the different TES filters. For frequency spacing, 0.06 cm ⁻¹ was used for nadir and 0.02 cm ⁻¹ for limb.

6.5.15 Map Data

\$(L2_OSP_PATH)/MapData	Directory contains subdirectories for map data
\$(L2_OSP_PATH)/MapData/InvMaps	Directory contains the inverse map files
\$(L2_OSP_PATH)/MapData/Maps	Directory contains the map files
Map_Nadir_Shape_O3_90S_90N	Map file for O3; used for shape retrieval.
\$(L2_OSP_PATH)/MapData/RetrievalLevels	Directory contains retrieval levels files.
Retrieval_Levels_<view>_<map type>_<species>	Files contain the retrieval level range and corresponding



Retrieval_Levels_<view>_Linear_TATM Retrieval_Levels_Nadir_Log_CO2 Retrieval_Levels_Nadir_Log_NH3 Retrieval_Levels_Limb_Log_HNO3 Retrieval_Levels_Limb_Log_NO Retrieval_Levels_Limb_Log_NO2	pressure levels for specified view, map type, and species <view> : (Limb, Nadir) <map type>: (Linear, Log) <species>: (CH4, CO, H2O, O3, HDO,)
--	--

6.5.16 Meteorology

\$(L2_OSP_PATH)/Meteorology	Directory contains files for GMAO meteorology parameter files
gmao_met_parameters-2d.asc gmao_met_parameters-3d.asc	Files provide information necessary to properly read the Goddard Global Modeling and Assimilation (GMAO) meteorological data

6.5.17 Microwindows

\$(L2_OSP_PATH)/Microwindows/MWDefinitions	Directory contains the microwindow files that provide the filter and spectral range information over which retrieval will be performed.
Microwindows_Limb_<species>	<species>: (CH4, CO, H2O, H2O_HDO, HNO3, NO, NO2, O3, PTGANG, TATM, TATM_H2O, TATM_HNO3_PTGANG, TATM_O3)
Microwindows_Nadir_<species>	<species>: (CH3OH, CH4, CLOUDEXT_PCLOUD, CO, CO2, H2O, H2O_HDO, H2O_N2O_CH4_HDO, H2O_O3, HCOOH, O3, TATM, TATM_H2O, TATM_H2O_CO2_O3, TATM_H2O_O3, TATM_TSUR, TSUR, TSUR_CLOUDEXT_PCLOUD, OCS< PAN, HCN, TSUR_EMIS_CLOUDEXT_PCLOUD, TATM_H2O_CO2, NH3)
\$(L2_OSP_PATH)/Microwindows/MWDefinitions/Microwindows_1_2_X_1	Directory contains microwindow file for filter 1B2
Microwindows_Limb_TATM_O3_PTGANG	
\$(L2_OSP_PATH)/Microwindows/SpectralWeightingMasks	Directory contains the spectral weighting mask files. The file provides the weighting factors for each spectral point within a given microwindow. Each microwindow in a given microwindow definition file will have an associated spectral weighting mask file.
Spectral_Weighting_Mask_Limb_<species>_StartFreq_# ###.##_End_Freq_####.##	<species>: (CH4, CO, H2O, H2O_HDO, HNO3, NO, NO2, O3, PTGANG, TATM, TATM_H2O, TATM_HNO3_PTGANG, TATM_O3_PTGANG, TATM_O3) ####.##: frequency, cm ⁻¹
Spectral_Weighting_Mask_Nadir_<species>_StartFreq_# ###.##_End_Freq_####.##	<species>: (CH4, CLOUDEXT_PCLOUD, CO, H2O_HDO, H2O, O2, TATM_H2O_O3, TATM_H2O, TATM_TSUR, TSUR, TSUR_CLOUDEXT_PCLOUD) ####.##: frequency, cm ⁻¹

6.5.18 NESR Predicts

\$(L2_OSP_PATH)/NESR_Predicts	Directory contains the estimated Noise Equivalent Spectral Radiance files. The files provide the average radiance in the TES filter bands for the TES baseline atmosphere.
limb_NESR.1A1.asc	The limb files contain NESR values at each frequency for all 16

limb_NESR.1B1.asc limb_NESR.1B2.asc limb_NESR.2A1.asc limb_NESR.2A3.asc limb_NESR.2A4.asc limb_NESR.2B1.asc	individual pixels in the detector arrays.
nadir_NESR.1A1.asc nadir_NESR.1B2.asc nadir_NESR.2A1.asc nadir_NESR.2B1.asc	The nadir files contain a single value for the NESR which can be used for all pixels in the detector array.

6.5.19 QualityFlag

\$(L2_OSP_PATH)/QualityFlag	Directory contains the quality flag file
QualityFlag_Spec_Limb.asc QualityFlag_Spec_Limb_H2O_HDO.asc QualityFlag_Spec_Limb_HNO3.asc QualityFlag_Spec_Limb_TATM_H2O.asc QualityFlag_Spec_Limb_TATM_HNO3.asc QualityFlag_Spec_Limb_TATM_O3.asc QualityFlag_Spec_Nadir.asc QualityFlag_Spec_Nadir_CH3OH.asc QualityFlag_Spec_Nadir_CO.asc QualityFlag_Spec_Nadir_CO2.asc QualityFlag_Spec_Nadir_H2O_N2O_CH4_HDO.asc QualityFlag_Spec_Nadir_H2O_O3.asc QualityFlag_Spec_Nadir_H2O_O3.asc~ QualityFlag_Spec_Nadir_HCOOH.asc QualityFlag_Spec_Nadir_NH3.asc QualityFlag_Spec_Nadir_TATM.asc QualityFlag_Spec_Nadir_TATM_H2O_CO2_O3.asc QualityFlag_Spec_Nadir_TATM_H2O_O3.asc QualityFlag_Spec_Nadir_TATM_PAN.asc QualityFlag_Spec_Nadir_TATM_HCN.asc	Files contain parameters that set quality flags.

6.5.20 RayTable

\$(L2_OSP_PATH)/RayTable	Directory contains the Ray Table for Limb view mode
RayTable.asc LimbRayTable.asc NadirRayTable.asc	Ray Table files contain the tangent level numbers to be processed

6.5.21 XSection

\$(L2_OSP_PATH)/XSection/Table_Data	Directory contains the links to the cross section table directories and the script that creates those links.
	The cross section tables are generated using XSFINT for each cross section species that might be included in a forward model calculation. The cross sections are calculated at each pressure and temperature point in the TES standard pressure/temperature grid. As with the line species, the cross sections are interpolated to the average pressure and temperature in each of the layers.
make_Xsect_Links	Script creates the links to cross section table directories situated at /project/TES/subsystem/L2/OSP/XSection/v2.0

6.6 BUILD ENVIRONMENT

6.6.1 Environment Variables

Below is a table listing of the environment variables used to build and test for Release 1.5.0.0. The environment variables can be defined by sourcing

- /vobs/L2_Retrieval/artifacts/setup_env

Deleted: 1

VARIABLE	VALUE
ORACLE_HOME	/pkg/ora10g/1020client
ORACLE_SID	tes9i
FFTWHOME	/pkg/local/fftw3.1-32E4
LAPACKHOME	/pkg/local/lapack-64
QRDHOME	/pkg/local/rrqr_acm-64
RWHOME	/pkg/roguewave/rw_bs8-64
PGSHOME	/pkg/pgs/TOOLKIT
PGS_PC_INFO_FILE	/vobs/L2_Retrieval/test/in/pcf_test.dat
FWHOME	/vobs/Framework
ErrorCodeFile	/vobs/Framework/Exception/error_code.h
LD_LIBRARY_PATH	/usr/local/gcc-3.4.5_64/lib:\$ORACLE_HOME/lib:\$ORACLE_HOME/lib32: \${LD_LIBRARY_PATH}
PATH	/usr/local/gcc-3.4.5_64/bin:\$ORACLE_HOME/bin:\$ORACLE_HOME/bin32 /pkg/rsi/idl_6.3/bin:\${PATH}
L2_OSP_PATH	/vobs/Support/osp/L2
ELANOR_ROOT	\$L2_OSP_PATH/ELANOR_Temp
ELANOR_USER_INPUT	./in
ABSCO_PATH	/project/ABSCO/v2.4/Single_MacroWindow_CoarserGrid_Data_FullFilter
DYNAMIC_ABSCO_PATH	/project/TES/microwindow_cache-3.0
GMAO_PATH	/vobs/L2_Retrieval/test/in
GMAO_PARAM_ID	5 (or 6 depending on Meteorology)
L2_PRODUCT_INPUT_PATH	/vobs/L2_Retrieval/test/out/TargetLevelData

Oracle environment variables were extracted from “/pkg/ora10g/1020client”.

6.7 BUILD INSTRUCTIONS

6.7.1 Instructions for ClearCase

Set ClearCase view: `cleartool setview <user_view>`
(see ClearCase Cookbook)

Assure proper ClearCase configuration setup: `cleartool edcs`
(see previous section 6.1)

6.7.2 Instructions for defining “Build” environment variables

Change directory to edit setup script: `cd /vobs/L2_Retrieval/artifacts`

Read and execute the commands in the setup script (see section 6.6.1):

- `source setup_env`

6.7.3 Instructions for building Framework libraries, Shared libraries, and L2 Retrieval PGE executables

Change directory to “L2_Retrieval”: `cd /vobs/L2_Retrieval`

Run the top level make script by typing:
`./build_L2_Retrieval -force -other HOW=opt`

Two executables will be created:

`/vobs/L2_Retrieval/bin/L2_Retrieval_Main`
`/vobs/L2_Retrieval/ELANOR/bin/ELANOR_main` (SCF standalone)

6.7.4 Instructions for delivering L2_Retrieval PGE to SIPS

Remove all private files in `/vobs/L2_Retrieval`.

Change to the delivery directory: `cd /vobs/L2_Retrieval/delivery/scripts`

Run the recursive archival script by typing: `./archive_target`
and enter delivery name:

Delivery name [L2_Retrieval] : `L2_Retrieval_PGE_R15.00.00` (Release 15.0.0)

Four new files will be created:

- `/vobs/L2_Retrieval/delivery/receipt_L2_Retrieval_PGE_R15.00.00`
- `/vobs/L2_Retrieval/delivery/unpack_L2_Retrieval_PGE_R15.00.00`



- /vobs/L2_Retrieval/delivery/docs/delivery_config_spec.txt
- /vobs/L2_Retrieval/delivery/docs/PGE_config_records.txt

An archive receipt, “**receipt_L2_Retrieval_PGE_R15.00.00**”, will be created during the archival process to allow version mapping of the files once they leave clearcase. The file contains the subsystem name, date stamp, clearcase config spec used, long listing of the source file used (showing which files were taken out of clearcase via symlinks) and the target file listing (showing all the files on the delivery end without symlinks). Before transferring the files for delivery, the archive receipt should be examined by the subsystem leads (Sassaneh Poosti and Sirvard Akopyan)

Transfer the files to the delivery directory
/project/delivery/L2_Retrieval/15.00.00-Delivered.

6.7.5 Instructions for unpacking delivery package

Transfer the delivery files to the target machine. Ensure the target machine has the ‘md5’ utility by typing: **which md5**. Contact the system administrator if md5 could not be found.

Unpack the L2_Retrieval archive by entering **./unpack_L2_Retrieval_PGE_R15.00.00**. Corruption caused to the archive during the network transfer is detected during the extraction process by verifying the transferred archive’s 128 bit fingerprint matches that of the original archive. The script uses ‘uudecode’, ‘tar’, and ‘bunzip2’; please ensure that your path on the target system is set properly so that the script can be executed.

If the extraction was successful, refer to documents in /docs for setup and execution instructions.

6.7.6 Instructions for delivering L2_Retrieval OSPs to SIPS

Remove all private files in /vobs/Support/osp/L2.

Create cross-section directory links, if not present:

```
cd /vobs/Support/osp/L2/XSection/Table_Data
./make_Xsect_Links
```

Change to the delivery directory: **cd /vobs/Support/osp/L2/delivery/scripts**

Run the recursive archival script by typing: **./archive_target**
and enter delivery name:

Delivery name [L2] : **L2_Retrieval_OSP_R15.00.00 (Release 15.0.0)**



Three new files will be created:

- /vobs/Support/osp/L2/delivery/receipt_L2_Retrieval_OSP_R15.00.00
- /vobs/Support/osp/L2/delivery/unpack_L2_Retrieval_OSP_R15.00.00
- /vobs/Support/osp/L2/delivery/docs/delivery_config_spec.txt

An archive receipt, “**receipt_L2_Retrieval_OSP_R15.00.00**”, will be created during the archival process to allow version mapping of the files once they leave clearcase. The file contains the subsystem name, date stamp, clearcase config spec used, long listing of the source file used (showing which files were taken out of clearcase via symlinks) and the target file listing (showing all the files on the delivery end without symlinks). Before transferring the files for delivery, the archive receipt should be examined by the OSP lead (Greg Osterman)

Transfer these files to the delivery directory –

/project/delivery/L2_Retrieval_OSP/15.00.00-Delivered.



7 RUNTIME ENVIRONMENT AND INSTRUCTIONS

7.1 INSTRUCTIONS FOR CLEARCASE

Set ClearCase view: `cleartool setview <user_view>`
 (see ClearCase Cookbook)

Assure proper ClearCase configuration setup: `cleartool edcs`
 (see previous section 6.1)

7.2 INSTRUCTION FOR DEFINING “RUN” ENVIRONMENT VARIABLES

Read and execute commands in the setup script to define the environment variables needed to run L2 Retrieval PGE by:

source /vobs/L2_Retrieval/artifacts/setup_env
 (see section 6.6.1)

VARIABLE	VALUE
ErrorCodeFile	/vobs/Framework/Exception/error_code.h
ELANOR_ROOT	\$L2_OSP_PATH/ELANOR_Temp
ELANOR_USER_INPUT	./in
L2_OSP_PATH	/vobs/Support/osp/L2 or OSP-<version id>/L2
L2_PRODUCT_INPUT_PATH	/vobs/L2_Retrieval/test/out/TargetLevelData
PGS_PC_INFO_FILE	/vobs/L2_Retrieval/test/in/pcf_test.dat
ABSCO_PATH	/project/ABSCO/v3.0/Single_MacroWindow_CoarseGrid_Data_FullFilter
GMAO_PATH	/vobs/L2_Retrieval/test/in or ./in
GMAO_PARAM_ID	3 (or 1 or 2 depending on Meteorology)
ORACLE_HOME	/pkg/ora10g/1020client
ORACLE_SID	tes9i

Environment variables to execute IDL Error Analysis are defined in “setup_env” by
source /pkg/rsi/id1_6.3/bin/id1_seup

Additional environment variables needed for the “run” environment are defined in the test scripts or are set by user.

VARIABLE	VALUE
FW_Environment	SCF or SIPS
FWErrorFile	./<error_filename>
DB_USER	<user_name>
DB_PWD	<user_password>
DYNAMIC_ABSCO_PATH	/project/TES/microwindow_cache

7.3 L2_RETRIEVAL STRATEGY PARAMETER DEFINITION AND CONTROL FILE

Strategy parameter definition and control file was prepared according to the Framework Programmer's Guide: `/vobs/L2_Retrieval/test/in/L2_Retrieval_def.dat`.

```

Parameter_Control {

  LogFileName string 100 "/L2_Retrieval.log"           // Log file name;
  Verbose Mode radio Verbose true Normal false Quiet false // Log mode
}

Program_Control {

  run          int 1 199999999 1 // Run counter;
  sequence     int 1 1152 1 // Sequence counter within a Run;
  scan         int 0 999 0 // Scan counter within a Sequence;
  nadirAverageFlag bool false // Nadir scans of a sequence to be averaged
  simulationFlag bool false // Flag to simulate measured spectrum
  useSimulatedLIBRadiance bool false // Flag indicating if simulated LIB Radiance file is
                                     staged when running in normal mode;
                                     // True State FSV will be created
  runELANOR    bool true // Flag indicating if ELANOR is invoked
  runELANOR_For_Simulation bool true // Generate simulated data by FAMS or not
  runRetrievalSteps bool true // Run retrieval steps or not
  reuseNormalNoise bool false // Reuse normal noise or regenerate noise (FAMS)
  addNoiseToSimulatedRadiances bool true // Add frequency-dependent noise to LIB files (FAMS)
  Forced_Failure bool false // I&T use only
  DbGmaoClimDataSelector string 100 "GMAO_FLK" // Selects Database data to use
                                               GMAO_FLK, GMAO_LLK, or CLIM
  diagnosticsFlag bool false // Output diagnostics files
  idlAnalysisFlag bool false // IDL Error Analysis Flag
  runFullFilterStep bool false // Run Full Filter Step
  tesMlsInterimFileFlag bool false // Output asc/bin Files for TES-MLS compined
  products input KSK, KS(y-FM).Default is false;

  developmentFlag bool false // Output logs and files for development and
  CASPER testing;

  version      float 1.0 100.0 15 // L2_Retrieval version;

```

7.4 INSTRUCTIONS FOR RUNNING STRATEGY REGRESSION TEST

- Set your view in ClearCase.
- Set environment variables needed to run L2 Retrieval PGE

source /vobs/L2_Retrieval/artifacts/setup_env



- Set environment variables for username and password to access the Oracle database


```
setenv DB_USER <username>
setenv DB_PWD <password>
```
- Create links to ABSCO files and XSection files, if not present


```
cd /vobs/Support/osp/L2/ABSCO
setenv ABSCO_PATH \
/project/ABSCO/v3.0/Single_Macrowindow_CoarserGrid_Data_FullFilter
./make_ABSCO_Links
cd /vobs/Support/osp/L2/XSection/Table_Data
./make_Xsect_Links
```
- Clean-up /vobs/L2_Retrieval/test/out, removing all files and subdirectories
- Create link to IDL executable used for error analysis, if not present


```
cd /vobs/L2_Retrieval/test
ln -s ../Analysis/IDL/bin/StandAloneErrorAnalysiswrapper.sav
```
- Execute the run script to test L2 Retrieval PGE


```
cd /vobs/L2_Retrieval/test/regression
./RunRegressionSuiteForL2_Retrieval.csh
```

Strategy Regression Suite (at the time of this document is prepared)	/vobs/L2_Retrieval/test/regression
<TestCase directory name>	Case1_NadirOcean_2147.26.2_3
	Case2_NadirLand_2147.171.2_3
	Case3_NadirLand_2931.275.4
	Case4_NadirLand_2931.275.4_StrategyOnly
	Case5_NadirLand_2147.241.2
	Case6_NadirLandPole_2147.32.2
	Case7_Limb_HNO3_2147.208.4
	Case8_Limb_O3_2147_208_5
	Case9_Limb_HNO3_2147.208.4_StrategyOnly
	Case10_LimbLand_HNO3_2147.15.5
	Case11_Limb_SO_3293.1.14
	Case12_Limb_SO_4155.1.12_StrategyOnly

7.5 INSTRUCTIONS FOR RUNNING ELANOR REGRESSION TEST SUITE (LINUX)

ELANOR regression test suite is configured in ClearCase.

```
cd /vobs/L2_Retrieval/ELANOR/test/linux_regression
```

There is a script “rall” that sets up environment variables, runs regression test, compares the test output with standard output and reports the results. Binary files will be compared with 0.0001 % tolerance.

```
./rall /vobs/L2_Retrieval/ELANOR/bin/ELANOR_main all
```

The above command line will run all the regression tests.

To run one specific case:

```
./rall /vobs/L2_Retrieval/ELANOR/bin/ELANOR_main <Test case directory name>
```

To run all test cases for Limb:

```
./rall /vobs/L2_Retrieval/ELANOR/bin/ELANOR_main TestCase-Limb*
```

To run all test cases for Nadir:

```
./rall /vobs/L2_Retrieval/ELANOR/bin/ELANOR_main TestCase-Nadir*
```

Any ELANOR executable can be tested given that the full path name for the executable is specified in the command.

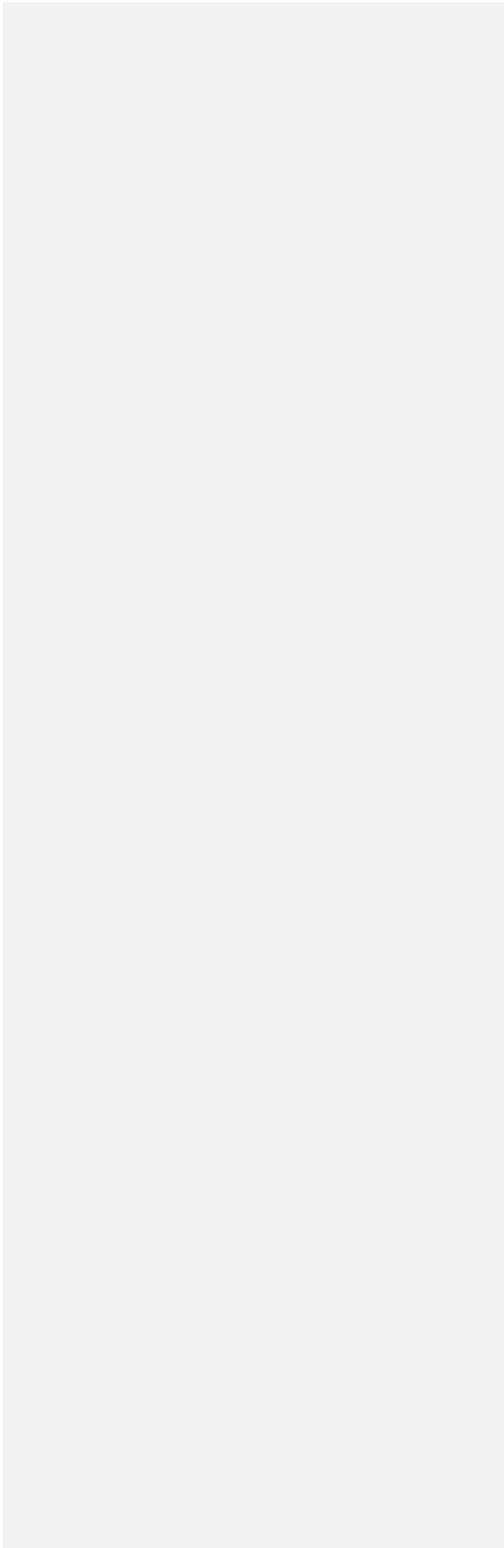
The output from test results is written to <TestCase directory name>/user_output and compared to the baseline saved in <TestCase directory name>/user_output/std. A log file, **regression<yymmdd>.log.<username>**, containing the summary of the test cases ran, is written to /vobs/L2_Retrieval/ELANOR/test/linux_regression.

The input for each test case is configured under <TestCase directory name>/user_input.

ELANOR Regression Suite	/vobs/L2_Retrieval/ELANOR/test/linux_regression
<TestCase directory name>	TestCase-Limb-Rad-10WIN
	TestCase-Limb-Rad-1WIN
	TestCase-Limb-Rad-1WIN-CALC
	TestCase-Limb-Rad-HNO3
	TestCase-Limb-Rad-OutputRayRad
	TestCase-Limb-RadAndJac-H2O
	TestCase-Limb-RadAndJac-H2O-TATM
	TestCase-Limb-RadAndJac-TATM-PTGANG
	TestCase-Limb-RayTraceOnly
	TestCase-Limb-Retr-H2O-TATM-2FILT
	TestCase-Limb-Retr_HNO3-newRayTbl
	TestCase-Limb-Retr-O3
	TestCase-Limb-Retr-TATM-10WIN
	TestCase-Limb-Retr-TATM-PTGANG
	TestCase-Nadir_Rad
	TestCase-Nadir-Rad-10WIN
	TestCase-Limb_Retr-TATM-O3-PTGANG-NewRayTbl
	TestCase-Nadir-Rad-1WIN

TestCase-Nadir-Rad-O3-Bermuda-APR30
TestCase-Nadir-RadAndJac-CALSCALE
TestCase-Nadir-RadAndJac-CLOUDEXT-PCLOUD
TestCase-Nadir-RadAndJac-H2O
TestCase-Nadir-RadAndJac-H2O-TATM-E0-TSUR
TestCase-Nadir-Retr-CALSCALE
TestCase-Nadir-Retr-CO-2026-Seq23-Scan2
TestCase-Nadir-Retr-CO-Ascension_Island-Seq4-Scan6
TestCase-Nadir-Retr-H2O-TATM-E0-TSUR
TestCase-Nadir_Retr-H2O-TATM-TSUR-CLOUDEXT-PCLOUD
TestCase-Nadir-Retr-H2O_HDO
TestCase-Nadir-Retr-O3-Bermuda-APR30-MAP
TestCase-Nadir-Retr-O3-Bermuda-APR30-ML-RegMAP
TestCase-Nadir-Retr-O3-Bermuda-APR30-ML-WaveletMap
TestCase-Nadir-Retr-O3-Bermuda-APR30-ML-WaveletMap-OutBestIfer
TestCase-Nadir-Retr-TATM-H2O-O3-TSUR-E0-CLOUDEXT-PCLOUD-CALSCALE
TestCase-Nadir-Retr-TATM-H2O-TSUR-CLOUDEXT-PCLOUD-CALSCALE

APPENDICES



APPENDIX A RDD ACCEPTANCE CRITERIA

The following acceptance criteria shall be used in reviewing the RDD:

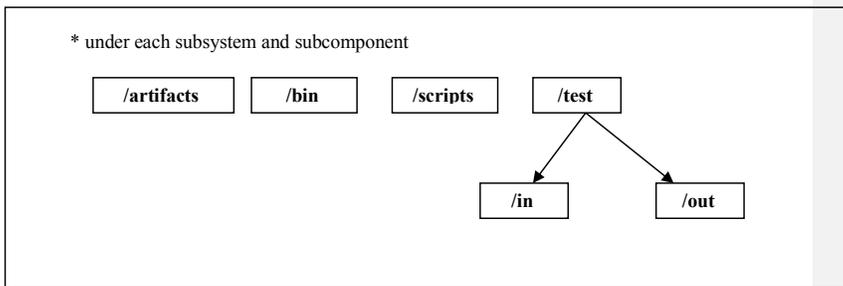
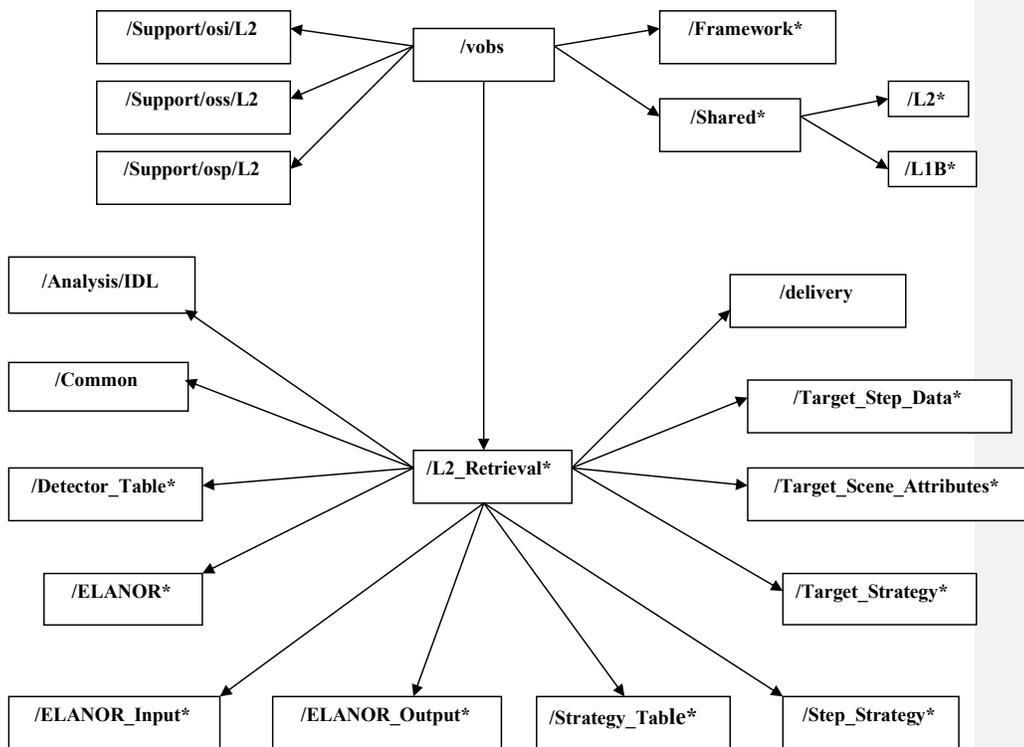
1. The RDD contains a description of all capabilities originally planned for this version. Any liens to the subsystem release plan are enumerated as well. Operations procedures, constraints, workarounds or other idiosyncrasies relevant to this release are clearly defined in the RDD.
2. All referenced test results and test reports are documented and have been cataloged in the configuration management system.
3. Machine-specific build requirements are specified in the RDD.
4. Runtime environment computer resources are specified in the RDD.
5. All supporting documents (FRD, design documents, ...) are current and are consistent with the released program set.
6. Versions of all inputs (their sources).

APPENDIX B TABLE OF FUNCTIONAL REQUIREMENTS

The table of Functional Requirements lists all requirements satisfied by L2_Retrieval PGE. The Requirements column contains the requirement number followed by a description.

[Not Available]

APPENDIX C CLEARCASE DIRECTORY STRUCTURE



APPENDIX D R15.0.0 DATABASE SCRIPTS

- To populate **R11** database for L2_Retrieval PGE integration
 - `./vobs/L2_Retrieval/scripts/populateDatabase.csh`
 - With real data
 - `./vobs/L2_Retrieval/scripts/insert_RealData.sql`
 - For Strategy Tables
 - `./vobs/L2_Retrieval/scripts/insert_StrategyTablesData.sql`
 - For L1A/B Tables
 - Scan Attributes Table
 - `./vobs/L2_Retrieval/scripts/insert_ScanAttributes.sql`
 - L1A Engineering Table
 - `./vobs/L2_Retrieval/scripts/insert_L1A_Engineering_initial.sql`
 - `./vobs/L2_Retrieval/scripts/update_L1A_Engineering.sql`
 - L1A Geolocation Table
 - `./vobs/L2_Retrieval/scripts/insert_L1A_Geolocation_initial.sql`
 - `./vobs/L2_Retrieval/scripts/update_L1A_Geolocation.sql`
 - L1B Nadir BT Table
 - `./vobs/L2_Retrieval/scripts/insert_L1B_Nadir_BT_initial.sql`
 - `./vobs/L2_Retrieval/scripts/update_L1BNadirBT.sql`
 - L1B Limb BT Table
 - `./vobs/L2_Retrieval/scripts/insert_L1B_Limb_BT_initial.sql`
 - `./vobs/L2_Retrieval/scripts/update_L1BLimbBT.sql`
 - L1B Target Spectra Quality Table
 - `./vobs/L2_Retrieval/scripts/insert_L1B_Tgt_Spectra_Quality.sql`
 - Target Scene Attributes Table
 - `./vobs/L2_Retrieval/scripts/insert_TargetSceneAttributes.sql`
 - Run Attributes Table
 - `./vobs/L2_Retrieval/scripts/insert_RunAttributes.sql`
- To delete old data for one target scene from L2 tables,
 - For L2_Retrieval PGE integration,
 - `./vobs/L2_Retrieval/scripts/delete_L2SceneTables_OneTargetScene.csh \`
`<run> <sequence> <scan>`
- To delete all rows of data from L2 tables
 - `./vobs/L2_Retrieval/scripts/truncate_L2Tables.sql`
- To delete rows for one scan from L2 tables
 - `./vobs/L2_Retrieval/scripts/delete_L2Tables_OneRun.csh`



- To populate R15 database for L2_Retrieval PGE unit tests

```
./vobs/L2_Retrieval/test/scripts/populateDatabase.csh
```

- With real data

```
./vobs/L2_Retrieval/test/scripts/insert_RealData.sql  
./vobs/L2_Retrieval/test/scripts/insertData_CCurve.sql  
./vobs/L2_Retrieval/test/scripts/insertData_LakeTahoe.sql  
./vobs/L2_Retrieval/test/scripts/insertData_NH3.sql
```

- For Strategy Tables

```
./vobs/L2_Retrieval/test/scripts/insert_StrategyTablesData.sql
```

- For L1A/B Tables

Scan Attributes Table

```
./vobs/L2_Retrieval/test/scripts/insert_ScanAttributes.sql
```

L1A Engineering Table

```
./vobs/L2_Retrieval/test/scripts/insert_L1A_Engineering_initial.sql  
./vobs/L2_Retrieval/test/scripts/update_L1A_Engineering.sql
```

L1A Geolocation Table

```
./vobs/L2_Retrieval/test/scripts/insert_L1A_Geolocation_initial.sql  
./vobs/L2_Retrieval/test/scripts/update_L1A_Geolocation.sql
```

L1B Nadir BT Table

```
./vobs/L2_Retrieval/test/scripts/insert_L1B_Nadir_BT_initial.sql  
./vobs/L2_Retrieval/test/scripts/update_L1BNadirBT.sql
```

L1B Limb BT Table

```
./vobs/L2_Retrieval/test/scripts/insert_L1B_Limb_BT_initial.sql  
./vobs/L2_Retrieval/test/scripts/update_L1BLimbBT.sql
```

L1B Target Spectra Quality Table

```
./vobs/L2_Retrieval/test/scripts/insert_L1B_Tgt_Spectra_Quality.sql
```

Target Scene Attributes Table

```
./vobs/L2_Retrieval/test/scripts/insert_TargetSceneAttributes.sql
```

Run Attributes Table

```
./vobs/L2_Retrieval/test/scripts/insert_RunAttributes.sql
```

- To populate R15 database for L2_Retrieval regression tests

```
./vobs/L2_Retrieval/test/scripts/populateDatabaseForRegression.csh
```



Step_Strategy *

TES Level 2 RDD

Appendix E

APPENDIX E R15.0.0 L2_RETRIEVAL CONTRIBUTORS

Jim Wood (JPL)	ClearCase Configuration Management and Delivery
Greg Osterman (JPL)	Operational Support Products
Irina Strickland (JPL)	L2 Retrieval PGE (Strategy) CDE
Pranjit Saha (Raytheon)	Detector Table, Microwindows, Strategy Tables, Target Scene Attributes, FAMS Supplier, Brightness Temperature, regression suite, PGE Integration & Test
Irina Strickland (JPL)	Continuum, FOV Convolution, NLLS Solver, OD Supplier (ELANOR)
Susan Kulawik (JPL)	Strategy Database Definition and Design, Strategy Table Data, L1 Target Scene Data, IDL Error Analysis